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A MODEL FOR INNOVATION ADOPTION IN PUBLIC SCHOOL DISTRICTS: RESEARCH ON THE CHARACTERISTICS OF SELECTED SCHOOL SYSTEMS AS THEY RELATE THE NEED FOR APPRAISAL, ACCEPTANCE, AND USE OF INNOVATIONS. FINAL REPORT. (APPENDIX G BOUND SEPARATELY)

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This study seeks to acquaint persons in local school districts and other agencies with the process of adopting educational innovations. Models were obtained from the literature and examined for usefulness by interviewing and submitting questionnaires to 149 educators and parents in eight typical school districts. From this process came a more general model: Innovation adoption can occur only in the presence of an initiating mechanism and a sustaining mechanism. Implications of the study for stimulating and supporting innovations in school districts are discussed. Appendices describe the school districts participating in the study, the study methodology and findings, a mathematical statement of the new model, and a view of the individual's role in the adoption process. (HW)

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A Model for Innovation Adoption In Public School Districts

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Arthur D. Little, Inc.

FINAL REPORT

Contract No. OEC-1-7-061500-0328

A MODEL FOR INNOVATION ADOPTION IN PUBLIC SCHOOL DISTRICTS: Research on the Characteristics of Selected School Systems as they Relate the Need for Appraisal, Acceptance, and Use of Innovations (FINAL REPORT)

ARTHUR D. LITTLE, INC.
CAMBRIDGE, MASSACHUSETTS 02140

March, 1968

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Studies of this kind are most meaningful when they represent the real experiences of educators and students and citizens in the school districts of America. The school districts cooperating in this study--one each in Massachusetts, New York, South Carolina, Tennessee, Illinois, Kansas, Wyoming, and California--were most helpful in introducing us to their experiences in adopting new practices in their schools. They were typical of the school districts in their states in some characteristics, but they were surely among the more innovative. They gave hours in this study in interviews and then more hours in answering questionnaires. Their interest and excellent support is represented in part by the fact that ninety-five percent of those to whom we gave questionnaires requiring an hour and a half of their time returned completed questionnaires to us. Their help was outstanding. The superintendents, who invited strangers to their districts and introduced them to school board members and staff and parents, gave continuing support to our work including becoming commenters upon an early version of our report. The school districts are named in Appendix A. The nearly two hundred people who talked with us and the stories they gave us go unidentified, but their contributions are gratefully acknowledged.

Among the staff at Arthur D. Little, Inc., William E. Claggett, David Cole, Jonathan Daube, Nicholas Deininger, and Lloyd C. Ferguson joined us in visits to the school districts. Mr. David Cole was instrumental in developing descriptions of the educational innovations to be studied (see Appendix C) and in making arrangements to visit the eight cooperating school districts. Mary Beth Braden, Patricia Cawunder, L. Faxon Rothschild, and Gary L. Watts gave us professional assistance in data processing and analysis, as did Harold G. Nelson, a consultant to Arthur D. Little, Inc. Dr. Kenneth J. Gergen, Chairman of the Department of Psychology and Education at Swarthmore College and consultant to Arthur D. Little, Inc., wrote Appendix F, which describes many of the social dynamics we dealt with in this study, and contributed substantially to the design of the research instruments used in the study. Dr. Paul F. Ross, Associate Project Director, was importantly involved in all phases of the study and was the principal author of this study report. Dr. Charles C. Halbower, Project Director, coauthored this study report and was responsible for the overall management of the study.

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SUMMARY

American institutions develop and change, and our society is attentive to those changes. The American system of education is receiving a significant share of this attention. This study is based on the premise that achievement of American educational goals will be facilitated if tested educational innovations are adopted at a faster rate throughout the school systems of our country. The study purpose was to extend, if possible, the understanding of educational innovation adoption processes in public school districts so that people in local school districts and agencies outside local school districts may better understand what they may do to facilitate innovation adoption. It was also the purpose of this study to develop models of the innovation adoption process, building upon past work in this field.

Models or descriptions of the innovation adoption process in public schools (kindergarten through grade twelve) were obtained from published literature.

These models were examined for usefulness by interviewing and questionnairing 149 educators and school board members and parents in eight reasonably typical school districts, one each in Massachusetts, New York, South Carolina, Tennessee, Illinois, Kansas, Wyoming, and California. Interviews and questionnaires focused upon relatively recent changes in practice in the school districts in both team teaching and professional staff development activities, identifying what was changed, why it was changed, when it changed, who was involved, what problems were experienced in considering the adoption, how problems were solved, and what the effects of the adoption have been. The visits and interviews stimulated us to develop a new model of the innovation adoption process which is more general than earlier models. Our new model was tested by examining the questionnaire data. Implications of our new model were developed for both local school districts and for agencies outside the local school district.

A review of innovation adoption experiences in eight school districts presented changes in practice which could often fit into one of some half a dozen earlier descriptions of the adoption process, but no single earlier model was general enough to describe a large proportion of the adoption incidents we observed. This finding is illustrated with descriptions of the earlier prototypical models for innovation adoption and with illustrations of changes which are and are not described by the prototypical models. The models which were not sufficiently general include the rational-change-process model, the response-to-a-need model, the internal-change-agent model, the lighthouse model, the outside-agent model, and the incentives-for-change model.

A new model was developed. It says that innovation adoption can occur only in the presence of an initiating mechanism and a sustaining mechanism. Initiating mechanisms are the means by which ideas about tested educational innovations are imported to the local district, and sustaining mechanisms are characteristics of the people in the district describing their interest in and value for education and describing the degree to which they share information and opinions about the schools. One initiating mechanism may be substituted for another, and sustaining mechanisms also are interchangeable. The life and dissemination of an innovation adoption within the district is dependent upon the amount and type of shared information about the effects of the adoption upon the district's performance in achieving its educational goals. An adoption will spread through the school district, be modified, or be discontinued depending upon information about its effects. The absence of information about effects usually isolates an innovation, preventing its spread whether it be useful or not. The relationship of initiating, sustaining, and performance feedback mechanisms to the innovation adoption rate and extent as well as to the district's achievement of its educational objectives is discussed, as is the role of conflict in the adoption process.

Tests of the model show that the adoption rate, extent, conformity to best educational practice, and other indicators of the amount and kind of change are related to the presence and force of a combination of initiating and sustaining mechanisms. Other tests of the model are promising but do not have statistical support in this study of eight school districts.

Implications of the study for stimulating and supporting innovations in school districts are discussed. Guidelines for the local school district emphasize the basic strategy of bringing an initiating and a sustaining mechanism into juxtaposition in order to achieve an innovation adoption. Overcoming barriers may be accomplished by substituting one mechanism for another. Achieving performance improvement for the district's educational system is best supported by securing and sharing information about the effects of an innovation adoption. These strategies are illustrated with examples.

High priority attention for federal, state, university, and private agencies outside the local school district is directed to: (1) the design and development of performance measures and information systems for local school districts and the development of the organizations and technology necessary to support their use in local school districts, (2) further examination of the innovation adoption process, and (3) the design development and initial evaluation of innovations in education. The characteristics of performance measures and information systems which are likely to be useful are carefully described. (4) Initiating mechanisms, which also can be aided by outside help, are judged to be least in need of increases in help at this time. The role of an agency outside the local school district in stimulating innovation adoptions is reviewed for its opportunities and its limitations.

Appendices describe the school districts participating in this study, the study methodology and findings, a mathematical statement of the new model of innovation adoption, and a view of the role of the individual in the adoption process.

I. INNOVATION IN PUBLIC SCHOOL EDUCATION

American institutions develop and change, and our society is attentive to those changes. For a variety of reasons the American system of education is receiving a significant share of this attention. Interest in innovation in education stems, in part, from concerns that the American education system is not achieving some desired goals, and from the widely expressed desire to "do things better." There is increasing conviction that the goals of American education are becoming more complex and that, somehow, we must find ways to achieve these goals with greater certainty and as quickly as possible.

This study is based on the premise that achievement of our educational goals will be facilitated if tested educational innovations are adopted at a faster rate throughout the schools systems of our country.

This report discusses and speculates, sometimes scientifically, about the general processes by which innovation adoption occurs in public school districts in America. Two kinds of educational innovations were studied in eight reasonably typical American school districts. The variety of innovation adoption behavior observed in the school districts was described in a statistical model of the adoption process and tested against reports from residents in the school districts and reports from members of the study team who visited the school districts. Implications of the findings were developed both for use by the local school districts and for use by agencies which serve the local school districts.

A DEFINITION OF INNOVATION IN EDUCATION

Innovation in public education includes a wide variety of changes in practice.

> "Innovation is a species of the genus 'change'. . . Innovation (is) a deliberate, novel, specific change which is thought to be more efficacious in accomplishing the goals of a system . . . It seems helpful to consider innovations as being willed and planned for, rather than as occurring haphazardly. The element of novelty, implying recombination of parts or a qualitative difference from existing forms, seems quite essential . . . Innovations in education . . . ordinarily have a defined, particular, specified character, rather than being diffuse and vague. Finally, since the inhabitants

> of a system . . . usually advocate or try to introduce innovations deliberately, as indicated above, the worthwhileness of an innovation is ordinarily justified on the basis of its anticipated consequences for the accomplishment of system goals." (Miles, 1964)

Innovations can occur in modifying the boundaries of the school system, thereby determining who and what is "in" the system and what is "outside" the system. Innovations can occur in size and territoriality, physical facilities, the way in which people use their time, the goals of the system, the methods and materials used in instruction, and in other activities of the system. Innovations may involve changes in the roles which people in the system are expected to fulfill, the beliefs and sentiments which define the limits of appropriate behavior, the structural and organizational relationships among people in the system, the methods by which people are introduced to the expectations of the educational system, and linkages which the system has with other systems, both in and outside the educational establishment. The term "innovation" is applied to a very wide variety of specific kinds of changes which can be made in an educational system. This definition follows Miles (1964).

THE FUNCTION OF INNOVATION IN EDUCATION

Innovation is of potential value, not because change per se is a desired activity, but because introducing changes may result, either directly or indirectly, in improved performance of the educational system. Despite other motives attributed by some critics to those who attempt to induce change in the educational scene, innovation in education is, by and large, a purposeful process: it is intended to result in some incremental benefits in the educational process and in its outcomes. Thus, the adoption of an educational innovation may change system performance, providing the opportunity to judge whether the change in performance is desirable. By this process the American education system changes its total performance as a function of the rate at which it introduces, assesses, and continues to introduce innovations. It can modify its performance as a function of the rate at which it modifies its practices and understands the effects.

Whether we consider education in America or education in a school district, the specification of educational goals may describe or imply the yardsticks by which its performance should be judged. The purpose of innovating is to achieve more important goals or to make it possible to reach existing goals with greater certainty, or with less effort, or in less time, or at lower cost, or with other incremental benefits. Changes are made in goals from time to time, and this innovation in goals may stimulate a chain of changes in the school system. The process of making innovations, reviewing outcomes, and innovating again is a dynamic process. Studies of innovation in education, of which this study is an example, are justified on the basis of the critical role of innovation in the achievement of improved performance of our educational system.

THE PURPOSE OF THIS STUDY

It was the purpose of this study to extend, if possible, the understanding of educational innovation adoption processes in public school districts so that people in local school districts and agencies outside local school districts may better understand what they may do to facilitate innovation adoption. It was also the purpose of this study to develop models of the innovation adoption process, building upon past work in this field.

THE SCOPE AND APPROACH OF THIS STUDY

The setting

Our study considered innovations in education as they occur in public school districts having educational responsibility for the student from his earliest years in school through the twelfth grade. We did not study innovation adoption in private schools, and we did not review the processes of innovation adoption in public and private higher education.

The development of new curricula, the design of new educational facilities, the development of new educational technologies, and the exploration of new roles and relationships among teachers and students have become complex undertakings in the last several decades. We have considered the processes by which public school districts adopt innovations which have been developed elsewhere. We have assumed, following Brickell (1961), that the large efforts required to design and systematically evaluate major educational innovations will occur under programs which are predecessors to, and not part of, the adoption processes we have studied. Using Brickell's terms, we studied the participation of the local school district in the dissemination stage of the overall sequence in educational innovation which includes design, evaluation, and dissemination.

The adopting unit

Innovations in education are adopted at several levels and locations. During our visits to school districts, examples of innovation adoption at various levels came to our attention.

State adoption. Recent changes in the state laws of South Carolina and of Tennessee increased the number of days which teachers spend during the school year in orientation and in-service training activities. Local school districts simply change their practice to conform to the state law.

District adoption. Each school in one district, all at the same time, undertook the identification of a study project which the professional staff of each school would carry out. The project could be anything which was related to the amelioration of problems of the local school as perceived by the school staff.

District adoption. State funds were made available for support of in-service teacher training if the school district undertook certain types of activities. District participation in the program was not required. The entire professional staff of one district entered the program, identified the topics they would study, and received financial support for this activity.

Teacher adoption. Two elementary teachers, faced with a larger number of students than in previous years and personally committed to grouping the students by achievement levels during reading instruction, found that the number of reading groups in their classrooms were too large to manage. Talking with each other about this problem, they agreed to exchange students during the time for reading instruction so that each of them experienced a reduction in the number of groups in her classroom. The innovation was made with the principal's approval.

School adoption. A new high school was being staffed. The principal and the initial members of the staff, influenced by their reading, became interested in creating an educational experience for the high school student which gave the student a great deal of freedom and responsibility for his study activities and, to some extent, his daily routine. A school program fitting this description evolved during the first year or two of the school's operation.

From the beginning of our study we confined our interest to adoptions which affected practice in the local school district. We were concerned with understanding the dynamics of adoption processes which directly involved and affected the professional staff of a district and which resulted in changes in practices in the local school district. We agreed that the adopting unit which should be the object of our study was in or near the local school district. Nevertheless the final choice of "the adopting unit" to be studied remained something of a problem, a problem which other students of institutional change have experienced (Katz; 1962). We describe our resolution of the problem in Chapter III.

The participating school districts

Eight unified school districts, each in a different state, participated in our study. The eight states were chosen so as to obtain broad regional representation of schools in the United States. Participating districts were drawn from Massachusetts, New York, South Carolina, Tennessee, Illinois, Kansas, Wyoming, and California.

Within each state, the participating district was selected so that both its enrollment and its expenditures per pupil were reasonably typical of the state. District enrollment and current expenditures per pupil had to fall within the middle two quartiles of these distributions of school district characteristics in the state in order for a district to qualify for inclusion in our study. Districts with large and small enrollments in a state were excluded. Districts with high rates of expenditure per pupil -- which are so often the subject of innovation studies -- were not included in our study, nor were districts which operate on a minimum or "bare survival" budget.

Districts were further selected because they had made recent changes in either team teaching activities or professional staff development programs during the last three years or so. These selections were made by telephoning the superintendent to discover if such recent changes had been made. It is our conviction that this selection procedure took us to school districts which are at least above average in their recent innovation history when they are compared with all school districts in their states, and it is likely that some of the districts we visited have performed outstandingly in the adoption of educational innovations. While this selection of innovative districts had the disadvantage from a research point of view, of precluding comparisons with districts where no adoptions had taken place, it also had the distinct advantage of letting us visit with people who had actually made adoptions and could give us information as to why and how they came about. Districts which were innovating in team teaching sometimes were not innovating in professional staff development programs, and vice versa, giving us the opportunity to review situations where innovations of at least one type had not occurred.

The participating school districts are listed in Appendix A, and some of their general characteristics are described in Appendix D.

The method

Two types or classes of educational innovations were studied. They included (1) changes to organizational and instructional processes which could be labelled as a form of team teaching and (2) changes in practices related to professional staff development and in-service training. The labels "team teaching" and "professional staff development" are terms which describe a wide range of activities, both in the educational literature and as used in the course of our study. Nevertheless the labels enabled us to focus our conversations on the same two general classes of changes as we visited each district. By considering two classes of innovations we hoped to avoid identifying patterns of innovation adoption which were specific only to a single type of innovation. At the same time we hoped to obtain information from the eight districts which would permit comparisons among the adoption processes in the eight districts and perhaps even permit some generalizations appropriate to the adoption processes for two different types of innovation. Illustrations of changes in school district practice which we classified under each type of innovation are given in Appendix C.

We chose two approaches to understanding the innovation adoption process. Since it is obvious that the process is not a simple one, we felt obliged to spend sufficient time in face-to-face conversation with a broad sample of people in each school district to be able to understand factors in the district's background and the social and developmental dynamics related to innovation adoption as sensitive historians or journalists might understand them. At the same time we felt an obligation to make systematic observations which could be reviewed to give us scientific checks upon our insights. To accomplish this, each interviewee completed questionnaires about the topic of our interview and about himself and the district. Each interviewer completed rating scales and checklists about each interview and about each district he visited. The difficult choice in this study between developing an understanding in depth of each school district visited as compared with utilizing a sample of school districts sufficiently large to provide a statistically sound basis for making generalizations was made in favor of developing an understanding in depth.

Data for our study came from two visitors (members of our study team) to the school district and from 18 to 25 residents in each district. The superintendent reviewed for the visitors the characteristics of the school district and its innovations in team teaching and professional staff development programs. Four persons, including the superintendent and the chairman of the school board, suggested -- at our request -- names of those who were active supporters of the innovations and those who were skeptical about them. The visitors then assembled a list of 18 or more people to interview, half to be interviewed about innovations in team teaching and the other half to be interviewed about innovations in professional staff development. Interviews were held with the superintendent, the chairman of the school board, the business manager or coordinator of federal programs, members of the superintendent's staff, principals, teachers, and sometimes parents, other board members, and other citizens.

We were determined that the product of our study would be closely related to what actually happens in the process of adopting innovations in school districts. To accomplish this, each interviewee was asked to discuss one or two innovations with which he was most familiar. The innovations were chosen from professional staff development programs if this was the interviewee's most relevant experience, or from team teaching, but not from both. Innovations were chosen for discussion which had occurred at least a year earlier, permitting the interviewee to report his understanding of effects of the adoption, and yet had occurred not more than two or three years earlier so that he could be expected to remember the circumstances which preceded and surrounded the innovation adoption. After our discussion, the interviewee completed questionnaires about the innovation adoptions which we had discussed in the interview.

II. EARLIER DESCRIPTIONS OF INNOVATION ADOPTION

The research literature regarding innovation in education is large and is periodically reviewed (Miles, 1964; Ross, 1958; Mort, 1964) for the purpose of discovering trends, generalizations, conflicting results, and new insights. The literature about innovation in education has its parallels in literature about innovation in medical practice and public health (e.g., Coleman et al, 1957) and in agriculture (Lionberger, 1960; Rogers, 1962). The literature in education continues to grow (Lin et al, 1966; Evans, 1968). Some of this work has considered the adoption process within the local school district or within a school (Brickell, 1961; Lin et al, 1966).

MODELS OF THE ADOPTION PROCESS

A very important finding in our study is that each of the prototypical models of the innovation adoption process applies infrequently enough to the educational innovations we observed that they all fail to qualify as a general model. This chapter presents our data supporting this finding.

The literature on the theory and processes of innovation adoption and organization change suggests a variety of models for the adoption of educational innovations in school districts. These models have been offered as descriptions of the way things actually happen, as concepts of the way things are thought or believed to happen, as descriptions of the way adoptions ought to happen, or as descriptions of what should be done to increase the rate of innovation adoption. Such models are the product of scientific observations, hypothesizing, and of other forms of creative invention. They are often used as prototypes for explanatory purposes. We will briefly describe half a dozen of these prototypical models for innovation adoption and relate incidents or make comments to show how they did -- and did not -- account for and describe what we discovered in the course of this study.

The "rational change process model"

Some say that innovation adoption, particularly the adoption of large and complex innovations, occurs in a sequence more or less formal and discrete steps. This model suggests that a school district identifies or senses an educational need, searches for the practices which will allow it to respond to that need, tries the practice and assesses its usefulness or simply learns how the practice has served others, and then adopts the innovation on a scale necessary to meet its needs. Some elaborate upon this model to include multiple steps such as the development of interest by local persons in a particular innovation, an assessment from others' experience of the usefulness of the innovation, an assessment of local need for the innovation, the development of strategies to accomplish local adoption, gaining local consent, planning implementation steps for adoption, possibly adopting the innovation for a trial period, and then final adoption.

As we began our visits to school districts, we looked for evidence that this rational model of the process of innovation adoption had been in operation. We began our interviews with a teacher or a principal, after introductory comments, by asking him to identify some specific change in team teaching or professional staff development practices with which he was familiar. He described the change and established the date of the first use of the new practice. We tried to determine whether there had been a trial period for the new practice, and how the district determined that the adopted change was the one most appropriate for the situation. We asked whether the early effects of the new practice had been evaluated. We usually embarrassed ourselves and our interviewees with these questions.

Rarely had there been any formal, self-conscious assessment of specific educational needs or the deliberate and purposeful identification of specific problems through the organized involvement of several people. In very few instances were there systematic searches for solutions to discovered problems. A carefully planned sequence of steps for implementing an adoption was seldom noted. Rarely were systematic assessments made of the effects of the innovation adoption. There were some important exceptions, and we can cite several examples.

Example #1. In recognition of existing social, ethnic, and economic conditions, a school principal and key staff members decided that the program in their school did not adequately prepare graduates for entry into the world of work and for a life as a self-respecting, economically self-sufficient citizen. With the approval of the superintendent, the principal's whole staff is working to change the school's educational offerings. This is an unusual example of shared commitment to solve an important problem and to search for and apply new programs and practices.

#2. A school district proceeded through a well-considered series of steps leading toward the adoption of team teaching in junior high school. Superintendent, principal, teachers, and the librarian visited a demonstration center. Consultants visited the school district to discuss features of team teaching with teachers and parents. Students who were to participate in the team teaching program were grouped in the year prior to the adoption of the program and given greater responsibilities for their own activities in study hall, thereby anticipating some of the changes the students would experience in the team teaching program. Meetings were held in which the parents could become acquainted with the program. Our visit to the district occurred before the program was adopted, so no observations about the effects of the adoption were available.

#3. Reacting to the results of group tests of reading achievement, a school district introduced a remedial reading program in the elementary grades with the assistance of specialists employed through the use of federal funds. These specialists teamed up with the classroom teachers in developing programs for small groups of children with special needs. Students considered for the tutorial assistance made possible by the additional teachers were given individual, diagnostic tests of reading skills. In addition to using these tests as part of the information guiding student placement in the program, the district planned to measure the students' reading achievement after special training as one means for assessing the effect of the program. While the program has been in operation about three years, systematic assessments of its effect have not yet been made.

Some innovations are adopted by a systematic step-by-step adoption process, but this model fits the innovation adoptions we observed only occasionally. Our experience, even in the innovative school districts we visited in the course of this study and also in a number of contacts with other school systems, indicated that it is very unusual for a district to carry out systematic, broadly comprehensive assessments of the educational needs of all of its students and particularly to use the results of such assessments to identify priorities of need as a basis for developing a concerted plan to ameliorate the most urgent needs. There are, however, a number of individual, personal efforts to determine at least some of the educational needs which are not being met and to determine what to do about it. There are fewer such broad-spectrum efforts made in a coordinated fashion by a whole school, and it is rarer still to find an entire district systematically involved in such assessments and related planning.

The "response to a need model"

Some say that innovation occurs when there is a felt need for change. Change occurs when a problem is perceived and something "hurts."

This simple model refers, of course, to voluntarily developed, purposeful change and not to that imposed by other agencies or resulting from actions of other parts of a system.

This model, as stated above, is so general that it can be applied to practically all instances of purposeful change. It is virtually equivalent to saying that "all behavior is motivated." Because of this generality, however, it fails to account for many situations in which change does not occur, eventhough a felt need obviously exists. If we consider only those changes which are adopted to directly benefit students, i.e., satisfy the educational needs of students, then this model fails to describe several innovation adoptions we saw.

We did discover a number of examples where this simple general model seemed to describe at least the critical elements of the change process. However, most of these examples concerned the felt needs of teachers per se. In other words, most of the "hurts" were primarily felt by teachers and were only secondarily related to specific educational needs of the students. The examples related below describe both situations.

#4. One elementary school class contained over 40 children and additional classroom space was not available. Through action by the teacher and recommendations of the principal, an additional teacher was assigned to that class. The two teachers differentiated their teaching roles by subject, coordinated their planning, teaching, and support activities, and evolved a form of team teaching including the use of small group instruction for ability groups in the various subjects.

#5. A sixth grade teacher in a self-contained classroom recognized that she was competent in language arts instruction but that she had to struggle with math and science instruction. It seemed to her that it required an inordinate amount of time to prepare effective daily lessons in all subjects. With the permission of the principal she arranged with another sixth grade teacher to establish a form of departmentalized team teaching. Later, a third teacher joined the team: one was responsible for language arts, another for math and science, and the third for music, art and social studies.

#6. An eighth grade history teacher became convinced that the junior high history curriculum needed to be thoroughly overhauled. He saw the same kinds of United States history content being presented in the elementary grades, junior high, and senior high school and similar pedagogical methods being used. He believed the students were bored with such repetition and thus were not learning what they could and should. After he was appointed coordinator of federal and state projects by a new superintendent, he voiced this criticism and the superintendent invited him to submit an ESEA Title III proposal for a project to revamp the curriculum. Eventually, it was approved and funded. It was oriented toward the inductive method of teaching history and was based on the use of original source materials from the time, region, and events being studied. The project involved a highly organized form of team teaching. The members of the team filled differentiated roles including those of the project director, the teacher of the experimental class, three intern teachers to assist with the three ability groups, a secretary, a study and advisory group including two other history teachers in the system, three outside consultants used in project design and evaluation, the town librarian, and part-time assistance from the audio-visual coordinator. The board of education was supportive and the superintendent, the coordinator of federal and state projects, and the chairman of the education department in a neighboring college acted as facilitators.

#7. A school district purchased a video tape recorder and playback unit using federal funds. There seemed to be no clear prior knowledge of how the unit was to be used, although its purchase seemed to fit into district plans to participate in ETV and offered the opportunity for a teacher to record a lecture prior to an absence so that the substitute teacher could present the material by television. In a separate and unrelated event, a principal attended a seminar sponsored by a regional educational laboratory. There the principal saw a video tape recorder used to record a teacher's classroom behavior. (The teacher plays back her own recording and describes it on a checklist of teacher behaviors. The teacher then destroys the marked checklist and erases the video recording.) The principal returned from the seminar and, knowing that his school district owned a video tape recorder, suggested to his staff members that they consider using the recorder for this purpose. He offered materials for their use. A few teachers have been adventurous enough to try it. The adoption of this innovation regarding professional staff development seemed to be the result of a fortuitous series of events.

#8. A school district teaches biology in high school as a part of its science program. A new teacher was added to the staff, and he was to teach some of the classes in biology. The senior teacher preferred to lecture and the new teacher was willing to conduct the laboratories. So a cooperative teaching relationship and a form of team teaching was adopted primarily in response to a teacher's interest or need. This event led to further changes in the biology program which appear to benefit the students.

#9. A school district adopted a change in educational practice which required changes in relationships among teachers, changes in scheduling of classroom activities, changes in the practice of moving students from one classroom to another, and yet other changes. The adoption followed the initial inspiration of one highly influential person who understood these changes to be necessary in order to conform to best current educational practice. It was assumed, of course, that this adoption would benefit the students, but the identification of specific problems or the sensing of student needs did not lead to this change.

Examples #1 and #3 also are relevant to this model.

If we define "need" so that it includes the felt needs of teachers, administrators, consultants, students, and taxpayers, this model describes many innovation adoptions. And, of course, changes which are primarily or more directly related to or motivated by teachers' needs and administrators' standards of professional excellence may often yield direct or indirect benefit to students, although this may not always be true.

However, the model has other shortcomings beyond those related to the question of whose needs are being satisfied. It is too simple to account for much of the complex interaction of forces we observed. It fails to deal adequately with the principle of multiple causation and with a variety of motivational factors including the differential effects of various incentives. While it can account for a number of instances where an innovation was adopted in a limited area and failed to spread (because it satisfied the needs of those few who were feeling the "hurt"), it does not account for instances where needs were felt but no change occurred. Neither does it account for extensions of innovation adoption in the bailiwicks of those who do not feel the hurt or see the need. Perhaps this model would have been more accurately and broadly descriptive if there were more widespread, purposeful searching for unmet educational needs in the community or if such existing needs and dysfunctions were sensed more directly as some sort of pain.

The "internal change agent model"

The literature discusses the characteristics of the "innovator." It also describes the causes and forms of resistance to innovation and the characteristics of "resistors." We sought to identify both those who were enthusiastic about recent school district innovations in team teaching or professional staff development and those who were skeptical about them. To the extent that we succeeded, both participated in our interviews and answered our questionnaires. However, it is difficult to identify both the innovator and those individuals who either overtly opposed or covertly resisted the innovation. There are social inhibitions which make it difficult for one person to name another as an innovation resistor, and there were no instances in which the three or four "nominators" whose counsel we sought quickly named a list of people who were resistors. But we met some anyway, and to the best of our knowledge both innovation supporters and resistors were interviewed in each district. However, our experience suggests that in some instances the actual innovators and resistors cannot be named even by principals and superintendents.

We heard frequent mentions of a superintendent or a principal who was identified as the innovator for a particular adoption. There is little doubt that superintendents and principals are important persons in the innovation adoption process; and it is certain that they can act quite effectively and specifically as a barrier to a particular innovation. It is much less certain that they can act as effectively as the champion of a particular innovation adoption or even as a champion of innovation in general. Their support for a change may be necessary, but usually it is not sufficient to insure adoption, and certainly it is not sufficient to insure effective implementation.

The adoption of an innovation may occur without the specific identification and recognition of an innovator. Perhaps instead of a single innovator, a group of people may import or synthesize a new idea and create the conditions in which it can be put to use. Some adoptions occur through the stimulation of an innovator, and others occur without a specific, self-conscious, generally recognized innovator.

> #10. A school district had exposed its teachers and administrators to recent training in small group processes and the effects of interpersonal relations on group performance. That training experience was generally perceived as an interesting and useful innovation in the district's professional staff development program. It was generally acknowledged that the superintendent was the "prime mover" in trying out and adopting this innovation. However, in that district we had particular difficulty in obtaining any real consensus in the nominations of prime movers or initiators of other adopted innova-

tions. This was particularly true of team teaching. A large number of teachers and other professional staff were identified as facilitators or supporters of the innovation, but no individual innovators emerged. In spite of this relative absence of identified innovators in most areas, the district was very active in considering and adopting innovations of many kinds.

#11. Through reading and visitations an elementary school teacher became convinced that team teaching provided advantages to both teachers and students which self-contained classrooms could not. Through informal discussions with fellow teachers on his grade level he stimulated their interest and together they persuaded the principal to permit them to adopt a team teaching arrangement for that grade level. That "mover" later became principal of another elementary school. He "talked up" team teaching in that school, interested his teachers in investigating the process, enlisted the active support of the superintendent and installed team teaching in several grades in that school. He was recently transferred as principal of a new and larger elementary school and is now engaged in establishing team teaching processes and organizations in the new school.

#12. A school district adopted a job performance review program in which the principal has a discussion about job performance with each teacher every second or third year, and with new teachers at the end of their first and second years. The superintendent has a similar conference with each of his principals on a similar schedule. Who was the innovator? "I said we would do it!" was the superintendent's report.

#13. A high school teacher in one district has been active in lobbying for changes in instruction in the subject he teaches and in other subjects as well. He enjoys an adequate income from other activities. He lives in the upper middle class neighborhood in his school district. He attends the private social events in his neighborhood and community. How does he bring about the changes he wants? "I tell Johnny, who is a student of mine, to go home and tell his Dad, who is the manager of the (nationally prominent) plant in our town (and who is not a school board member) to persuade the superintendent to do such and such." That teacher is having a wonderful time, and may or may not be recognized in all places for the innovator he is.

A search for internal change agents in school districts often will result in the identification of individuals who have played key roles in innovation adoption processes. (Appendix F deals exclusively with the influences of X individuals, both within and outside the district, as they can affect the change process). However, these individuals sometimes function more as facilitators of change than as genuine innovators. They may encourage serious consideration of new ideas, endorse the views of persons who want to make a change, arrange for a good deal of communication between appropriate persons in "gate keeper" positions, and use their influence to acquire funds, staff or facilities necessary for the adoption and implementation of an innovation.

However, innovations may not be adopted in spite of the presence and the efforts of an internal change agent. Even recognized innovators may not be successful in their attempts to bring about change. On the other hand, some innovations appear to be adopted without the apparent intervention of "an innovator" or a vigorous advocate of the innovation. A model of the innovation adoption process should be able to accomodate these situations.

The "lighthouse model"

Some say that an innovation in education is aided in its adoption when educators can see a demonstration of that innovation in actual operation in a school which has many characteristics like their own school. There is little doubt that a demonstration is often persuasive, particularly when the visitor can see students and teachers at work and can talk with them. We observed results of visits to "lighthouse" demonstration centers which had both positive and negative effects on those considering the feasibility of a given innovation.

#14. In one school district, many members of the teaching and administrative staff had traveled to other school districts to visit demonstration centers for team teaching. They were enthusiastic about what they saw. However, they came back to their own school district persuaded that they could not adopt the innovation because the teachers in the demonstration center had extra helpers in their classroom which teachers in this district were sure they would not be permitted or could not secure.

#15. Teachers in a school district visited a demonstration center to observe team teaching for elementary students. The team teaching was being conducted in a very large room with no separating walls and with a great deal of acoustical material to deaden noise levels. Students met for work in groups in different parts of the very large room. A teacher returned from this visit convinced that she wanted no part of team teaching because this single open classroom gave her no opportunity to take off her shoes, a visibility which would result in great embarrassment if she ever lost her temper, and a desk in an open space with no place of privacy to which she could retreat to gather her wits if things got disorganized.

#16. A school principal wished to interest his staff in introducing non-graded instruction in the early elementary levels. He visited a school district where he could see non-graded instruction in use and talk with the people there. He met a person who was both well informed and enthusiastic about the non-graded instruction in the visited school. The principal invited that person to visit his own staff, and the visit was accomplished. Prior to the visit from the outsider, the local teaching staff had been reading materials about non-graded instruction and discussing its implications for their school. The enthusiasm of the visitor was infectious, and the decision was made shortly thereafter to adopt non-graded instruction in that school. The proposal was presented to the superintendent and the school board, and the adoption was made in the fall of the following year.

The "lighthouse" model is widely accepted and is the basis for much of the current effort regarding innovation demonstration and dissemination. Laboratory schools, demonstration centers, ESEA Title III exemplary projects and supplementary education centers, and the use of visits to and of visitors from such lighthouse institutions are specific examples of the applications of this model. However, this model, like others described earlier, also fails to account for those situations where demonstrations and visitations are made, but no change occurs.

The "outside agent model"

Many people recognize that teachers and other professional staff in school districts are dedicated people whose time is already overcommitted to conducting instruction with methods and materials currently used in the school district. They say that an outside agent is necessary to effect change. Innovation adoptions, they say, are most successful when the teacher is stimulated by credible experts from other professional communities and is given whatever outside support she feels she needs. The innovation adoption rate in school districts, it is said, will increase if an agency devoted to encouraging innovative adoptions in school districts exists or is created.

We searched for evidence that "outside agents" were active initiators of, as contrasted with being responsive to, interest in adopting innovations in team teaching or in professional staff development. The contenders for such a role include members of the state department of education, staff from regional educational laboratories, staff from consulting organizations doing work in education, faculty from colleges and universities, and even student teachers who experienced their brief apprecticeship in the school district. We found examples of innovation adoption which had been initially stimulated and/or facilitated by representatives from each of these sources. Following each interview about an innovation adoption, we answered the question shown in Table 1. The tabulation of our answers is shown for both team teaching and professional staff development. These "outside" consultants considered while answering the question shown in Table 1 may have stimulated interest in the innovation or, as was more commonly the case, were responding to an inquiry from the school district. It can be seen that "outside agents," either those active in stimulating interest in innovation adoption or those who are simply responsive to requests for information, were involved in about half of the innovation adoptions studied. The effects of the outside consultant (where such were used) ranged from being critically important in the innovation adoption to being a distracting or negative influence.

It seems quite probable that the use of outside agents can increase the rate of innovation adoptions in the school districts with which the outside agent works. Our observation is that, while the role of the outsider is clearly influential, we found little indication that any particular agency is taking an active, initiator's role in stimulating innovation and adoptions in the school districts we visited.

#17. The newly appointed superintendent of a school district and the new chairman of the education department in a college in the same town became acquainted and established an unusual degree of rapport, mutual respect, and a close working relationship. With the approval of the college and the school board, they arranged for joint appointments of staff to both faculties, visiting lecturers from the college, supervision of more student teachers by school faculty, joint faculty participation in a summer school for school children taking special or experimental courses and for training teachers, and collaboration with the high school principal and teachers in establishing team teaching in history courses and in revamping the curriculum.

#18. Two high school English teachers, with the active support of the principal and the superintendent, with help from the science teacher, and with a budget of $1,000 from the school board, initiated

TABLE 1

ROLE OF OUTSIDE CONSULTANTS IN INNOVATIONS OBSERVED IN THIS STUDY[a]

Showing the count of visitors' judgments
following each of 138 interviews

The number of "outside" consultants (resource persons) from any source who were involved before and during the adoption of the innovation were:

Visitor's Judgment	Team Teaching	Professional Staff Development
More than five	8	10
Four or five	6	7
Three	6	3
Two	10	7
One	9	16
None	28	28
	67	71

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[a] See Appendix G, Questionnaire Form 7, Page 4, Question 12

> a project to reconstruct the English curriculum. The new curriculum would utilize the inductive approach, would be designed to achieve functionally defined objectives for students in different grade and ability levels, and would be associated with expressive and report requirements in other subject areas. A Title III "mini-grant" was obtained to further support the project. Several consultants, mostly faculty from universities, were involved as this project developed. The most significant consulting assistance was supplied by an educator and a researcher associated with the new regional educational laboratory.

Examples #2, #6, #13, and #16 also are relevant to this model.

While outside change agents were involved to some degree and in various ways in the innovation adoption processes we explored, nearly half of our interviewees described adoptions in which no outside agent was involved. The outside agent model, like the other prototypical models, described only a portion of the adoptions we observed.

The "incentives for change" model

It is the practice of the federal government, state governments, and sometimes private sources to offer money to school districts under certain specified conditions. The conditions usually require a change in educational practice. The financial support for special purposes may enable the school district to undertake new activities without the need to eliminate portions of its current program or to seek budget increases from normal sources to cover the full cost of the new activities. This practice for encouraging innovation in education has been quite influential. We saw a number of innovation adoptions which were made possible or importantly facilitated by federal or state funding assistance.

#19. A school district established a reading clinic, employing additional staff. The staff provided diagnostic services and specialized teaching and remedial services to the several elementary schools in the school district. The services were available as the individual classroom teacher asked for them. In meetings with teachers of the school district, the new specialists explained the services available and explained how to get them. The program was paid for with federal funds.

#20. A school district undertook a professional staff development activity for all its teaching staff. The program included reading, meetings, and discussions about every three weeks, visits from consultants, and travel to schools in other school districts to observe particular programs, such as team teaching. Funds for reading materials, consultants' fees, and travel were made available from the state.

#21. A program of summer instruction was undertaken by a school district. Federal funds were available for paying the teachers and for providing materials. In addition to offering extra opportunity for students experiencing difficulties in school, the summer session gave teachers the opportunity to try new instructional materials and to teach at grade levels different from those in which they had prior experience.

Examples #6, #7, and #18 also are relevant to this model.

As we discussed each innovation in team teaching and professional staff development with our interviewees in the districts we visited, we listened for their descriptions of the use of federal and state project monies or categorical aid in the support of innovation adoption. Following each interview we marked our answers to the question shown in Table 2. The tabulation of our answers shows that federal funds are important in causing practices to change in a local school district, even though well over half of the innovation adoptions occurred without the aid of federal funds. Our observations suggest that while innovation adoptions occur in local school districts both with and without the incentives of special funds, the larger, more complex and more expensive innovations tend to be more dependent on special funds for their adotpion.

LIKELY NATURE OF A SINGLE MODEL

Each of the models we have reviewed describes some of the innovation adoptions we studied and accounts for some of the critical characteristics of the adoption process. However, none of the prototypical models adequately describes or accounts for a large majority of the adoptions we reviewed. When we look at the internal processes and operations of school districts and at the various influences acting upon and within districts, we conclude that innovation adoption is a multifaceted, many-patterned, probabilistic event which usually results from interaction among several conditions and forces.

To the extent that practices within public school districts are voluntarily and purposefully changed, they seem to change through a variety or through combinations of innovation adoption processes. A single model of innovation adoption must necessarily: (a) fit a very diverse pattern of behavior in school districts, (b) represent the

TABLE 2

ROLE OF FEDERAL FUNDS IN INNOVATIONS OBSERVED IN THIS STUDY[a]

Showing the count of visitors' judgments
following each of 144 interviews

In the implementation of this innovation, Federal funds were:

Visitor's Judgment	Team Teaching	Professional Staff Development
Absolutely essential	10	15
Important, but not essential	9	8
Helpful to a degree	4	6
Unimportant or not used	48	44
	71	73

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[a] See Appendix G, Questionnaire Form 7, Page 4, Question 13

important and interacting forces resulting in each particular adoption, and (c) possess some functional value in guiding practical action which has as its purpose the stimulation of the rate and extent of educational innovation adoption in school districts.

We brought to our investigation the point of view that the events which occur following an adoption have an important effect on its life, direction, and spread through the school district. We suspect that the events following one innovation adoption in a school district have an important effect upon the probability of further innovation adoption. While our method restricted our view to a small number of adoptions ("critical incidents") occurring in a very limited span of time (within one to four years), our visits leave us still disposed toward a view of the adoption process which has early innovation adoptions affecting the probability of later adoptions through feedback communication processes and memory. The feedback features in the model by Lin (Lin, et al, 1966) appeal to us as valuable and even essential features of a broadly applicable, functionally useful model.

Our visits to school districts in this study persuaded us that the prototypical models found in the literature and which we had selected for study did not adequately account for or describe what we were seeing in real life. Therefore, we attempted to construct a model which accommodates the variety and incidents and processes associated with the innovation adoptions we observed.

III. A MODEL FOR INNOVATION ADOPTION IN PUBLIC SCHOOL DISTRICTS

The history of our work in this study is best characterized by the term "search." It began with a search for, and an examination of, the models of innovation adoption which already had been developed by other researchers concerned with innovation adoption in education. Our visits to school districts began with elements of those prototypical adoption models incorporated in our interview guides and questionnaires. Fortunately, our first visit taught us that the models discussed in the literature were only crude approximations to what actually was occurring in the districts. We modified our interviewing immediately, but we were committed to our questionnaires since we already had used them in one of the eight school districts.

For some time during the study we were uncertain about the adopting unit most appropriate for the study of innovation adoptions in school districts. The individual teacher could represent one focus of the study, especially if we wished to understand the sources and patterns of influences on individuals who play important roles in decisions to adopt given innovations. The district itself could represent a focus for the study since many important changes in educational practice involve actions by administrators and district staff, changes in school board policy, new curricula, different use of space, scheduling modifications, new patterns of staff interaction, clerical assistance, cooperation of students and sometimes of parents, as well as changes in the classroom behavior of individual teachers. The scope of our study, which planned visits to only eight school districts, would not permit analysis likely to demonstrate statistical significance, and our selection of innovative districts which were also typical of their states with respect to enrollment and per pupil expenditure increased homogeneity and further reduced the possibility for effective statistical checks on our hypotheses. In spite of these shortcomings related to small sample size and reduced heterogeneity in the sample, we decided to base our model and focus our analytical work on the school district as the adopting unit. This facilitates investigation of factors such as the extent, rate, and pattern of innovation adoption, and the use and effect of feedback information regarding performance.

Our model was formulated in its major characteristics (Ross, Dec. 1967) after seven of the eight visits to school districts had been completed and before any data analysis had begun. Measures of the concepts used in the model necessarily were put together from questionnaires already constructed and data already gathered. Refinements in the model, particularly the distinction between two kinds of school district performance (p and P), were made while analysis was in progress.

Our model describes the innovation adoption process and the performance information feedback process which occurs in a local school district. It assumes the local school district as the setting within which innovation adoption occurs. The model has three mechanisms which influence innovation adoption and the life of an adoption. They are: (a) initiating mechanisms (I), (b) sustaining mechanisms (S), and (c) performance feedback transmissions (F). The model relates these mechanisms to innovation adoption performance (p) of the school district and to overall school district performance (P). This chapter describes the local school district as it is modelled and then considers the effects of the several variables in the model.

THE FUNCTION OF INNOVATION

The purpose of the public school system contained within a district is to provide educational experiences appropriate to the needs of the students and citizens in the district and to the needs of society in general. It is possible to conceive of some indicators of the overall educational performance of the public school system in the district and to think of that performance as undisturbed until an innovation in educational practice is introduced. The introduction of the innovation affects the overall educational performance of the system. Presumably the innovation is purposely introduced to improve the performance of the system, or to make the public school system operate at the same level of performance with less effort, or to modify educational programs to better fit changing educational needs. In these terms, it is understood that an innovation will have some effect upon overall educational performance of the district's school system.

By introducing innovations in a programmatic and planned way, the school district is able to modify its overall performance in order to better fulfill its goals and objectives. Educational innovations provide means and steps by which public education in the school district may adapt to the changing requirements placed upon it. Innovation adoption, then, is a step in a dynamic adaptive process by which the public school district adjusts to changing demands and expectations.

A model of the innovation adoption process is useful if it can suggest what conditions promote or fail to promote the adoption of an innovation. The model is even more useful if it can illustrate how innovation adoption is related to the overall performance of the school district in its many educational functions.

Our model assumes that the "design" and "evaluation" stages in educational innovation, in Brickell's terms (Brickell, 1961), are performed outside the local school district. In adopting innovations, the school district, as we model it, is participating in Brickell's "dissemination" stage. The school district may want to do some designing (adaptation) and some evaluation (will the innovation be "right" for us?) of its own during the adoption and assessment cycle. We regard measures of the usefulness of the innovation adoption in the local district as "performance indicators" and the channels by which this information reaches people in the local district as the communication nets. While data from the local district's experience with an innovation may be published in a professional journal and become one of the products of the evaluation stage described by Brickell, it is more commonly true that the local assessment processes are not a part of Brickell's evaluation stage. Instead, they are part of the cyclical process occurring within the local district which allows it, over time, to modify its own overall performance in achieving desired objectives.

There is some departure from truth when we assume, in our model, that a local school district never designs an educational innovation. Some local school districts do make significant educational innovations. Local school districts may adopt innovations, developed elsewhere, in some unique combination which, by some criteria, constitutes a new design. While our assumption in the model is occasionally incorrect, the overwhelming majority of changes in local educational practice are adoptions of practices which have been invented and validated elsewhere; thus, we feel the simplifying assumption is justified at this stage in the model's development.

THE SCHOOL DISTRICT

The school district is assumed to have a boundary, and this boundary determines whether some person or some piece of real estate or some institution is "in" the school district or "outside" the district. Students, teachers, administrators, parents, school board members, citizens, attendance areas, local tax sources, and parent-teacher organizations are "in" the school district. Nearby colleges and universities, members of the state department of education, the regional educational laboratory, the county superintendent's office, the neighboring school district, publishers, local industrial organizations, and the college of education that supplies teachers to the school district are all "outside" the school district. However, the definition of what is "in" and what is "outside" the school district is not always neat or clear. Faculty members in the nearby university can also be both parents and taxpayers in the school district. In one role they are outside the district and in the other they are in the district. Local industry is an important source of tax revenue for schools and may or may not take an active part in community decisions about schools. In some parts of its role it is in the school district and in other parts of its role it may be outside the district. While the definition of what is inside the boundaries of the district and what is outside may not have the precision of the definition of a mathematical set, the idea that there is a boundary separating inside from outside coupled with our examples may be sufficient for practical purposes to define "the district" for this model.

THE CAUSES OF INNOVATION ADOPTION

The model assumes an initiating mechanism and a sustaining mechanism must be simultaneously present in some force exceeding a very modest threshold value before an innovation adoption can occur. The absence of an initiating mechanism, despite the presence of sustaining mechanisms, assures no innovation adoption. The absence of a sustaining mechanism, despite the presence of one or more initiating mechanisms, assures no adoption.

An initiating mechanism (I) is an activity by means of which information about innovations designed elsewhere is brought into the school district. The initiating mechanisms are the primary shaping and architecting forces for the adoption, determining its specific character. The initiating mechanisms link to a person (or persons) who is IN the local school district. Examples of initiating mechanisms include:

- Reading of both professional and general literature (I)
- Participating in professional organizations for education and related fields (I)
- Participating in in-service training programs (I)
- Using time to study in university, workshops, etc. (I)
- Visiting demonstration centers or other schools (I)
- Being visited by outside consultants (I)
- Importing new ideas through the hiring of new personnel (I)
- Conversing with people in a neighboring school district (I)
- Importing ideas through parent and student migration from one school district to another (I)

Any of these initiating mechanisms may act to bring knowledge about educational innovations to the school district. The initiating mechanisms are principally responsible for the architecture of the innovation which is adopted locally, an idea consonant with the assumption that the design and validation of major innovations occurs outside the local school district.

A sustaining mechanism (S) is a characteristic of the school district. A sustaining mechanism may change over time, but at any particular moment it represents a condition in the school district. Sustaining mechanisms act primarily to establish a climate within which initiating mechanisms can be effective. Sustaining mechanisms have little or no effect upon the specific architecture of innovations adopted. They simply make it possible for an adoption to occur. Examples of sustaining mechanisms include:

- Financial support (S)
- Board and administrator interest in innovation (S)
- An active informal communication net in the community carrying information about education (S)
- Community level of interest in education (S)
- Personal interaction among members of the professional staff (S)
- Teacher-administrator involvement in community affairs (S)
- The interest of the school board in educational development as perceived by all levels of the professional staff (S)
- The identification and recognition of a problem related to the educational needs of the school-age population (S)
- A supervisory style by board or superintendent or principals which encourages teacher-initiated changes in educational practice (S)
- Time for and attention to professional development (S)
- A pervasive attitude that assessments of school district performance are essential activities (S)

Any combination of initiating and sustaining mechanisms in sufficient force to reach a relatively low threshold will cause innovations to be adopted. Increases in the number and force of the initiating and sustaining mechanisms simply increase the rate and variety and extent of the adoptions within the school district. If there are differences in the effectiveness of particular initiating and sustaining mechanisms, and it seems likely that there are, combinations of the more effective mechanisms increase the rate and extent of the adoptions.

THE LIFE OF AN ADOPTED INNOVATION

The life of an innovation adoption, and probably in some degree the extent of an adoption within a school district, depends upon the direction (positive or negative) and the intensity or credibility of the performance feedback transmissions (F) about the adoption. Information saying the adoption is not liked will shorten the life of the adoption or cause it to be modified, while feedback information carrying approval of the adoption will lengthen its life. Complete absence of performance feedback transmissions will result in erratic adoption life. If there were no communication net (S) in the school district, it would be impossible for performance feedback transmissions either to spread an innovation adoption throughout the district or to shorten its life.

Performance information carried in the communication net includes information about the effects of an adoption and readiness for further adoptions (p) and about overall performance of the school district's educational system (P). In its simplest form, information about the effects of an adoption is:

- The adopted innovation is liked or not liked (p)

This information has meanings which are more complex as the number and variety of sources of this information are increased. The complexity of performance information also increases when careful, systematic assessments of the effects of an adoption are made. Performance indicators about adoption (p) essentially tell the district what change has been made in its overall educational performance and what change has been made in its practices by a particular innovation adoption. Examples of such indicators include:

- The extent of the adoption in the school district (p)
- The degree to which the new practice conforms to best educational practice (p).
- The degree to which the adopted innovation is meeting important needs (p)
- The rate at which the adoption is being made, beginning

perhaps from the district's earliest discussions of the possible use of the innovation and continuing to the present time. The rate is judged against some estimate of the quickest possible time for making such an adoption. (p)

- The amount of educator and citizen effort being spent in making the adoption (p)
- The degree to which the adoption is aiding the school district in ameliorating a particular educational problem (p)
- The amount of change in some aspect of overall educational performance (P) which has been effected by the adoption (p)
- The degree to which the district, after one adoption, remains ready to make another adoption (p)

Each of these indicators attends primarily to a change in conditions in the school district from "before" to "after". The adoption performance (p) indicators do not focus on the absolute level or quality of educational performance or organizational effectiveness (P).

The overall quality of the school district's performance (P) is of as much interest to students, parents, and citi[illegible] the rate at which the school district's performance is improving (p). The life of an adoption may depend upon whether the overall performance (P) is what the school district wants. These overall performance indicators potentially are as effective as, and probably are more effective than, the adoption performance indicators (p) in controlling life (continue, modify, discontinue) of an adoption. Lacking information about many aspects of overall performance (P), a school district could adopt new practices without changing (or perhaps the adoptions might even lower) its overall educational performance. Examples of indicators of overall performance include:

- Student academic achievement in each of several basic subject areas (P)
- Student health and physical fitness (P)
- Student interpersonal skills (P)
- Student social and political responsibility (P)

- Teacher and administrator satisfaction with professional growth (P)

- Conformity of district practices, in each of several program areas, to standards of best educational practice (P)

- Rate of change in district educational practice toward best educational practice (P)

- District success in meeting the varied educational needs of the students (P)

- District success in attaining its educational objectives for a cost indicating high organizational effectiveness (P)

Admittedly, performance indicators of this kind are difficult to find.

OTHER EVENTS ASSOCIATED WITH AN ADOPTION

The role of conflict in the innovation adoption process is not clear. It was our impression during visits to the school districts that some of the school districts with high rates of innovation adoption were experiencing noticeable conflict and some of the school districts with low rates of innovation adoption were not experiencing much conflict. Our hosts usually did not hasten to share information about community and intra-school-system conflicts about education with us, although some conflicts could be sensed and others were openly discussed.

It can be argued that conflict about the schools is a sustaining mechanism, indicating concern about educational quality and overall performance and creating a climate within which initiating mechanisms can shape a change in school practices.

It can also be argued that conflict is one of the consequences or effects of innovation adoptions. Sustaining mechanisms will support changes which are shaped by a single person, or a small group of persons. These changes may occur without the participation of some persons who later perceive the changes as unnecessary, inappropriate, or even harmful. In effect, the forces which support an adoption can flow past single individuals or groups of individuals who, later, cannot support the adoption. The accumulation of the negative responses to an adoption by those who may have been by-passed in the decision to make the adoption, or who perceive the adoption to be of negative value, may be the counterforce creating the conflict which is a consequence of innovation adoption.

We believe the latter argument about conflict as an effect rather than a cause of change in practices is nearer the true role of conflict in education innovation adoption.

Those who wish to engineer change in any organization frequently talk about resistance to change. Our model neither makes much use of the role of the individual change agent (although it certainly accepts the possible presence of a change agent who imports the new ideas, acting as the in-district link for the initiating mechanism, or the change agent who attracts attention and interest to education, thus building a sustaining force) nor does it make much use of the role of the resistor (although, again, it accepts the possible presence of a resistor who reduces the force of a sustaining mechanisms; a principal or superintendent uninterested in changes in practice is one example). Our model emphasizes the creation of sustaining mechanisms through the efforts of groups of individuals and describes the character of the district, thus not modeling the effects of each individual actor in the complex innovation adoption process. We believe this to be realistic since there seem to be no individual roles which are always crucial in the adoption process. The roles of the superintendent and principals are as critical as any individual roles in the district, but even these seem not to be always the key influence in an adoption.

The complete absence of sustaining mechanisms or the complete absence of initiating mechanisms is a barrier to innovation. The absence of sustaining mechanisms is likely to be the more commonly experienced barrier.

A MATHEMATICAL DESCRIPTION OF THE MODEL

We have prepared a mathematical statement of the model which is presented in Appendix H. It is intended as an integral part of our description of the model but it is removed to an appendix to avoid distracting the non-mathematical reader. The examination of data supporting and denying the model is presented in Chapter IV. It is guided by the mathematical statements about the model and about hypotheses which are stated mathematically in Appendix H.

IV. EVIDENCE SUPPORTING AND DENYING THE MODEL

Recognizing that a sample of eight districts is an extremely small foundation from which to draw any statistical conclusions, we nevertheless wanted to check our model against the recorded observations we had made with the help of the school districts' residents. We wanted to ask: Do initiating and sustaining mechanisms in combination describe adoption climate and relate to adoption performance? Is a combination of initiating and sustaining mechanisms essential for innovation adoption? Which initiating mechanisms are most effective, and which sustaining mechanisms are most effective? Do sustaining mechanisms have more effect on adoption performance than do initiating mechanisms? Do initiating mechanisms determine the particular type of adoption which is chosen? Is a combination of initiating, sustaining, and feedback mechanisms related to overall educational performance of the district? Do feedback mechanisms augment adoption performance in improving overall educational performance of the district? These are some of the questions which tests of our model must attempt to answer. This chapter describes the evidence which we have which supports or fails to support our model.

To test our model it is necessary to develop measures of three mechanisms (I, S, and F) and two types of school district performance (p, P). We developed those measures from questionnaire responses by residents and from questionnaire responses by visitors. Visitors' judgments were influenced by their experience in the school districts visited in this study, their experience with other school districts and work on other questions and issues related to public education, and their experience with change processes in other types of organizations. The residents' judgments were influenced by their detailed knowledge of the local school district (as complete a knowledge as is available from any source) and by their experience in other school districts. Questionnaires completed by visitors and residents are presented in Appendix G. The measures of I, S, F, p, and P are described in detail in Appendix E and are described in general in this chapter.

MEASURES OF THE CLIMATE FAVORING ADOPTION: I, S

The climate favoring innovation adoption is formed by initiating mechanisms which import new ideas to the school district and sustaining mechanisms which provide the environment within which the new ideas may be put to use. A climate favoring innovation adoption disappears altogether when no initiating mechanisms are present or when no sustaining mechanisms are present. To measure the climate favoring adoptions, it is necessary to measure a variety of initiating mechanisms and a variety of sustaining mechanisms. We were able to develop measures of eight initiating mechanisms and measures of eight sustaining mechanisms as representatives of a larger number of mechanisms of these two types.

Measures of initiating mechanisms (I)

Measures of the initiating mechanisms are listed in Table 3. They include the reading of literature about education, participating in professional affairs, attending universities and workshops, visiting other schools, being visited by experts, hiring new teaching staff in the district, contacting a large number of people outside the district about educational matters, and being influenced by specified outside educational experts. Each of these measures represents a mode of importing new ideas to the community.

We measured the school district's reading about team teaching by asking the residents we interviewed about team teaching to answer nine questions about their reading. We accumulated their answers to establish how much each individual read about team teaching, then accumulated the measures of reading by those individuals to determine how much reading about team teaching was occurring in the district. Measures of each of the first six initiating mechanisms shown in Table 3 were developed using a similar method.

The remaining two measures (a, d) were developed from the communication nets which are described later.

Measures of sustaining mechanisms (S)

Eight sustaining mechanisms were measured in our study and are listed in Table 4. The sustaining mechanisms measure community interest in and support for education (JV, LV),district management interest in and awareness of innovations (KV, b, e), frequent informal opportunities for communication between educators and members of the community (MR, c), and a communication net which allows the district's educators to be influenced by a wide variety of people who have roles in education which are different from their own (h), including people inside and outside the school district. High scores in all of the measures describe a school district which is actively interested in education, talks a great deal about education, is influenced in educational matters by a number of different sources of influence within and outside the district, and has recently supported through public action increases in financial support for education for one purpose or another. Measures for these mechanisms were developed in the same way as for the initiating mechanisms, combining visitors' judgments or combining residents' judgments to form a measure of the district's characteristics.

TABLE 3

MEASURES OF INITIATING MECHANISMS (I)

Name of Mechanism	Code for measure	Information recorded by:	Number of questions included in measure
1. Reading of professional and general literature about education	AR	residents	9
2. Participation in professional organizations for education and related fields	BR	residents	2
3. Recent study in university courses, workshops, etc.	CR	residents	4
4. Visits to other schools	DR	residents	5
5. Visits from consultants, university professors, and other outsiders	ER	residents	4
6. Importation of ideas through hiring new teaching and administrative and staff personnel	FV	visitors	3
7. Number of different outsiders contacted by residents	a	residents	1
8. Ratings of amount of influence outsiders have on my position about a particular innovation	d	residents	1

TABLE 4

MEASURES OF SUSTAINING MECHANISMS (S)

Name of Mechanism	Code for Measure	Information Recorded By:	Number of Questions Included in Measure
1. Community support of increased budgets for education	JV	Visitors	2
2. Board and superintendent awareness of innovation	KV	Visitors	2
3. Parent and community interest and participation in supporting education matters	LV	Visitors	3
4. Residents' involvement in local community affairs	MR	Residents	6
5. Teachers' report of the influence of superintendent and principals on their position about the adoption	b	Residents	1
6. Diversity of communication nodes in education-discussion network	c	Residents	1
7. Influence felt by teachers and administrators from the Board on their own position about adoption	e	Residents	1
8. Influence felt by district educators from persons in many roles other than their own role	h	Residents	1

Measures for communication nets

In an effort to understand the communication channels within a school district and its links to people outside the school district, we asked residents to name people they knew who fit certain specified roles related to education. A list of eighteen roles is shown in Table 5. The list includes educators with different roles, students and parents, other members of the local community, and outsiders of various descriptions. Residents then indicated, under several sets of instructions, how often they conversed with people who fit these roles and how much influence people in these roles had on their own positions and opinions with respect to a particular innovation. By putting together all of the names that all residents supplied, it is possible to identify patterns of communication in each school district and to see how these patterns vary from school district to school district. These communication nets are pictured in Figures 2-9, and a guide to reading the figures appears immediately preceeding Figure 1.

The communication nets show large differences in the districts' recognition of specific outsiders. District 2 and District 7 name one or two outsiders which three or more residents identify by supplying their names. District 4 and District 1 name six outsiders each. The influence of students on teachers, as reported by teachers, varies widely from district to district. Educators in the school district report being influenced to a greater degree by each other than by students, parents, and board members. Some districts seem to have a communication net which carries more influential information such as District 4 and District 8, than do others, such as District 5. This is indicated by a large number of plus (+) symbols in the arrows showing direction of influence.

Measures of initiating mechanisms were developed from the communication nets. One measure indicates the number of outsiders contacted (a) and the other indicates the influence from outsiders upon principals, teachers, and other staff (d).

Measures of sustaining mechanisms also were developed from the communication nets. One measure (b) describes the influence felt by teachers from the superintendent and principals upon their own positions and opinions regarding the specific innovations we studied. Another measure (c) indicates the number of communication nodes in the net. A large number of communication nodes means that if one node fails to transmit a particular message, there are other nodes which can assume the transmission function. The larger the number of nodes, the more likely will be the dissemination of important information about education in the school district. A third measure (e) describes the influence felt by administrators and teachers from members of the Board of Education on matters related to an innovation. Yet another measure (h) indicates the influence felt by district educators about specific innovations from persons in many roles other than their own roles. It indicates the local educators' sensitivity to influence from many sources.

TABLE 5

ROLES FOR WHICH RESIDENTS SUPPLIED A NAME[a]

Role Code No.	
	Local Educators
02	Superintendent of public schools in my town
03	Principal of public school in my town
04	Member of superintendent's or principal's professional staff
07	Teacher in a public school in my town
	Educational Clientele
14	Student
18	Public school student's parent (in my town)
	Community Members
06	Public school board member in my town
08	Member of a citizen's group in my town
13	Elected public official (in my town)
	Outsiders
01	Nationally eminent scholar, writer, or researcher in education
05	Staff member of the state department of education
09	Public school administrator in a nearby town
10	Public school teacher in a nearby town
11	University professor
12	Member of staff for an educational research organization
15	Consultant to public schools in my town
16	County superintendent of schools in our county
17	Member of county superintendent's professional staff

---

[a] Data from nominations for these roles became the basis for constructing the communication nets shown in Figures 1-9.

Source: Appendix G, Questionnaire Forms 5 & 6, Pages 2-5, Questions 1-18.

READER'S GUIDE TO THE COMMUNICATIONS NETWORKS

Figures 2-9 graphically describe influence patterns and communication networks in the eight school districts. Figure 1 shows the basic pattern for each communications network with administration at the top, board members and teachers at the right, students, parents, and other local people on the left, and outsiders along the bottom.

Figure 1 also shows the kinds of people who can, if nominated three or more times, appear in the net. A square represents a specific person in a role who has been named by three or more interviewed residents in that community. A circle represents a group of persons in one particular role, such as all of the school board members who were named or all of the teachers.

Numbers between arrowheads (→ 2.30+>—) represent of influence based on a rating scale which varies from the value 1, indicating a large amount of influence, to the value 7, indicating little or no influence. The values were calculated from a rating about "the influence (the named-person) has upon my own position with respect to (a particular) innovation." They show the rating and direction of influence as reported by the persons to whom the arrows are pointing. The diagrams usually show influence the students have on the teachers, the influence the teachers have on principals, the influence of the school board on teachers, the influence that outsiders in general have upon teachers, and a variety of other influences. The symbol "n" indicates the number of individuals whose responses make up the numerical ratings of influence shown between arrowheads directed at the principals, teachers, and other staff, respectively.

Each number between arrowheads is accompanied by a + or a - symbol. The symbol + indicates that the numerical rating has an influence strength which falls above the median of the comparable ratings in all school districts. The symbol - shows the opposite. A review of the + symbols on each figure shows the number of influences which that district experiences in greater than average strength as contrasted to comparable influence scores in the other seven districts.

The curious reader will want to pause over the communication nets and ponder the strength of the students' influence as compared with other influences, the routes of influence for parents, the role of the school board to the extent that it is diagrammed in these nets, and the patterns of influence impinging on teachers and administrators.

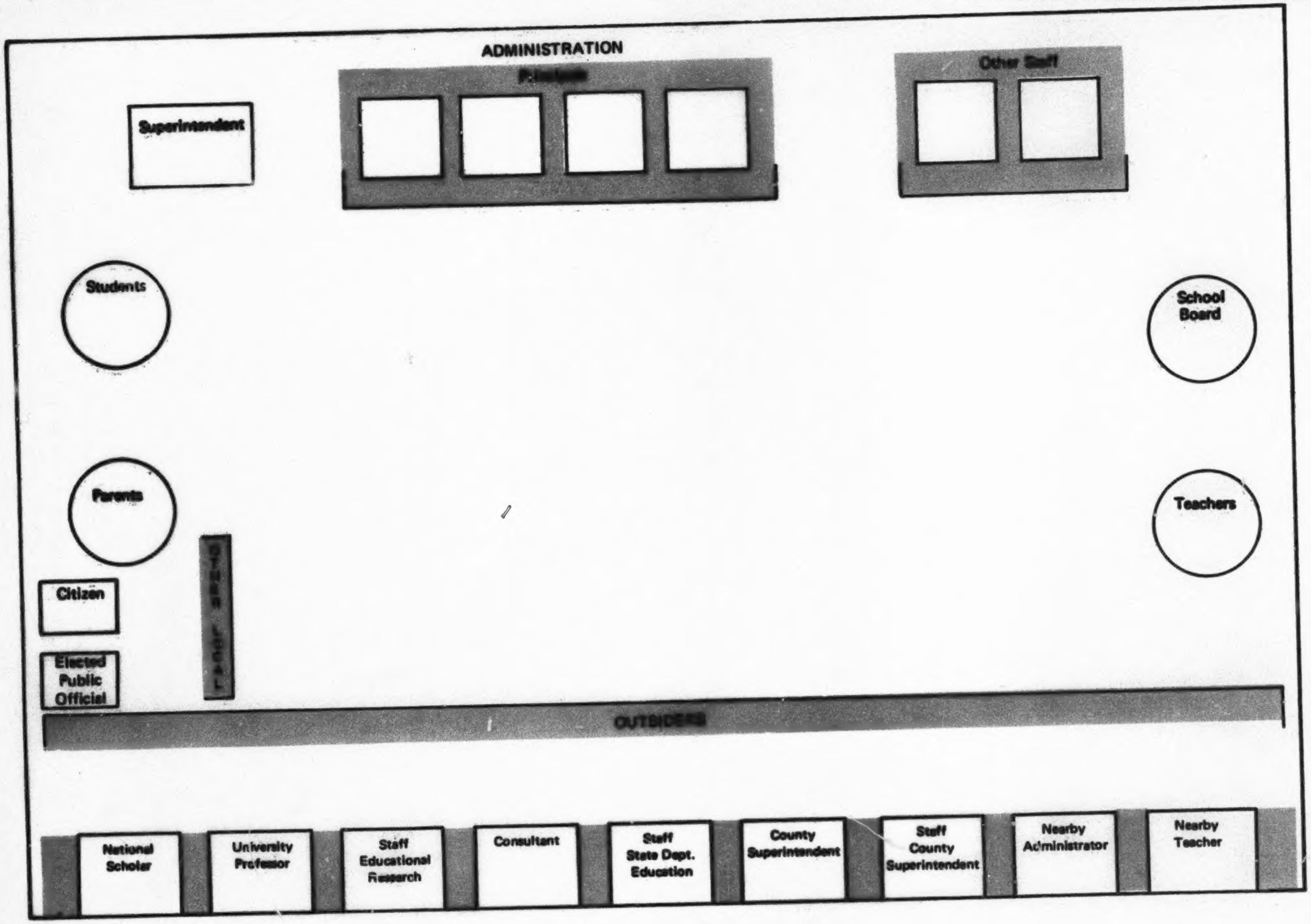
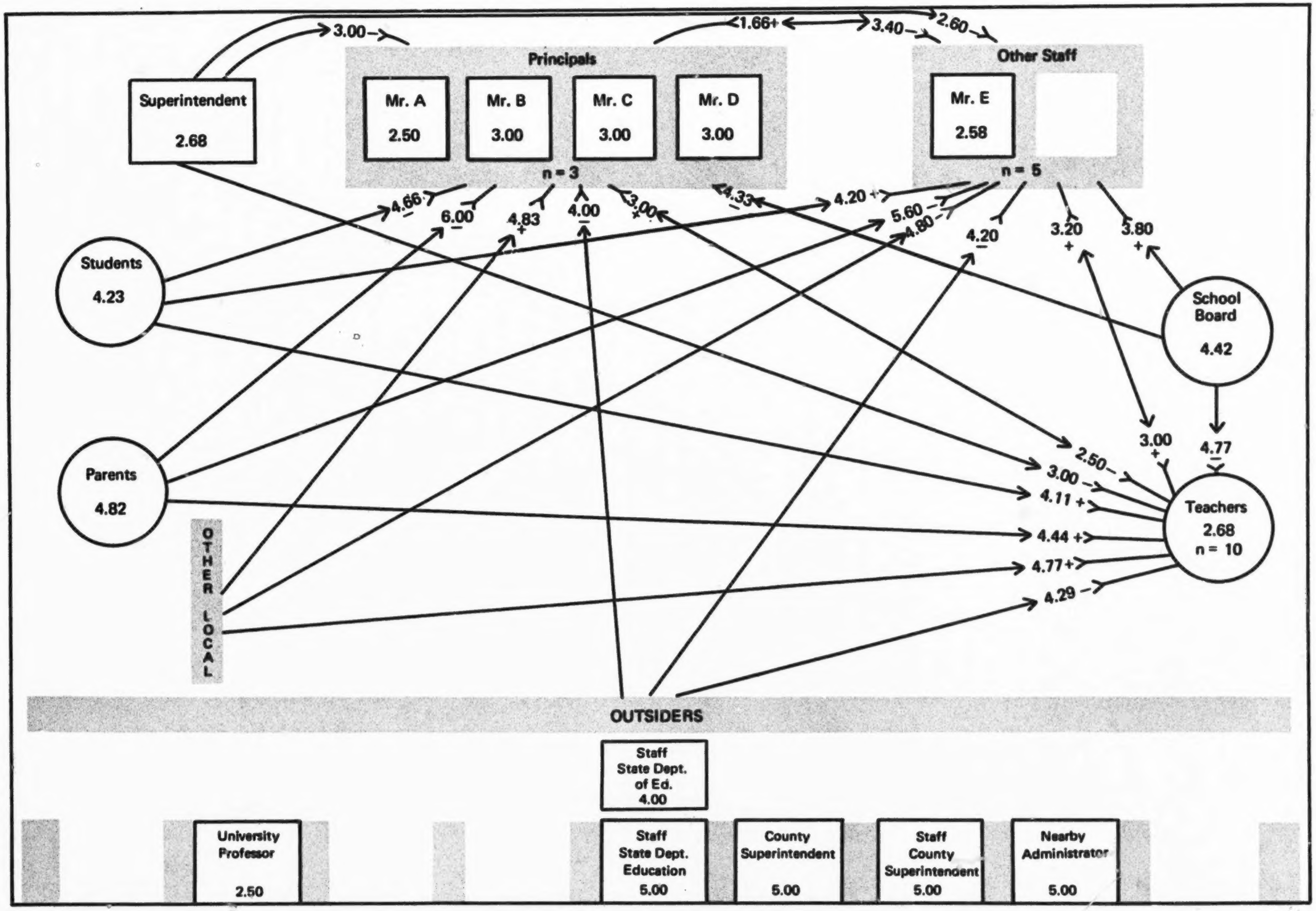

ADMINISTRATION
Principals
Other Staff
Superintendent
Students
Parents
School Board
Teachers
Citizen
Elected Public Official
OTHER LOCAL
OUTSIDERS
National Scholar
University Professor
Staff Educational Research
Consultant
Staff State Dept. Education
County Superintendent
Staff County Superintendent
Nearby Administrator
Nearby Teacher

FIGURE 1 — COMMUNICATIONS NETWORK



3.00
1.66+
3.40
2.60
Principals
Other Staff
Superintendent
2.68
Mr. A
2.50
Mr. B
3.00
Mr. C
3.00
Mr. D
3.00
Mr. E
2.58
n = 3
n = 5
4.66
6.00
4.83
4.00
3.00
4.33
4.20 +
5.60 –
4.80 –
4.20
3.20 +
3.80 +
Students
4.23
Parents
4.82
School Board
4.42
OTHER LOCAL
3.00 +
4.77
2.50 –
3.00 –
4.11 +
4.44 +
4.77 +
4.29 –
Teachers
2.68
n = 10
OUTSIDERS
Staff State Dept. of Ed.
4.00
University Professor
2.50
Staff State Dept. Education
5.00
County Superintendent
5.00
Staff County Superintendent
5.00
Nearby Administrator
5.00

FIGURE 2 — COMMUNICATIONS NETWORK DISTRICT 1

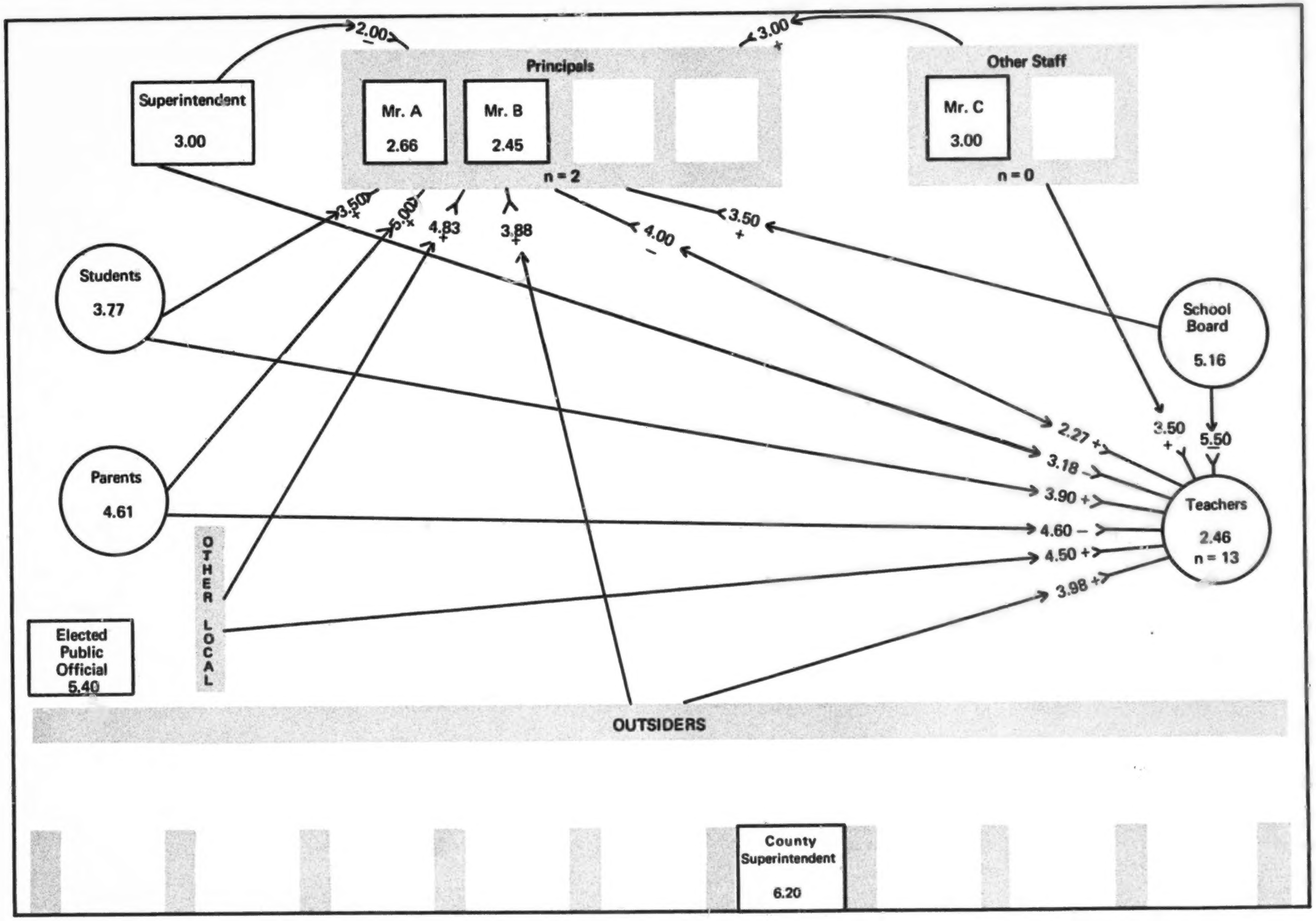
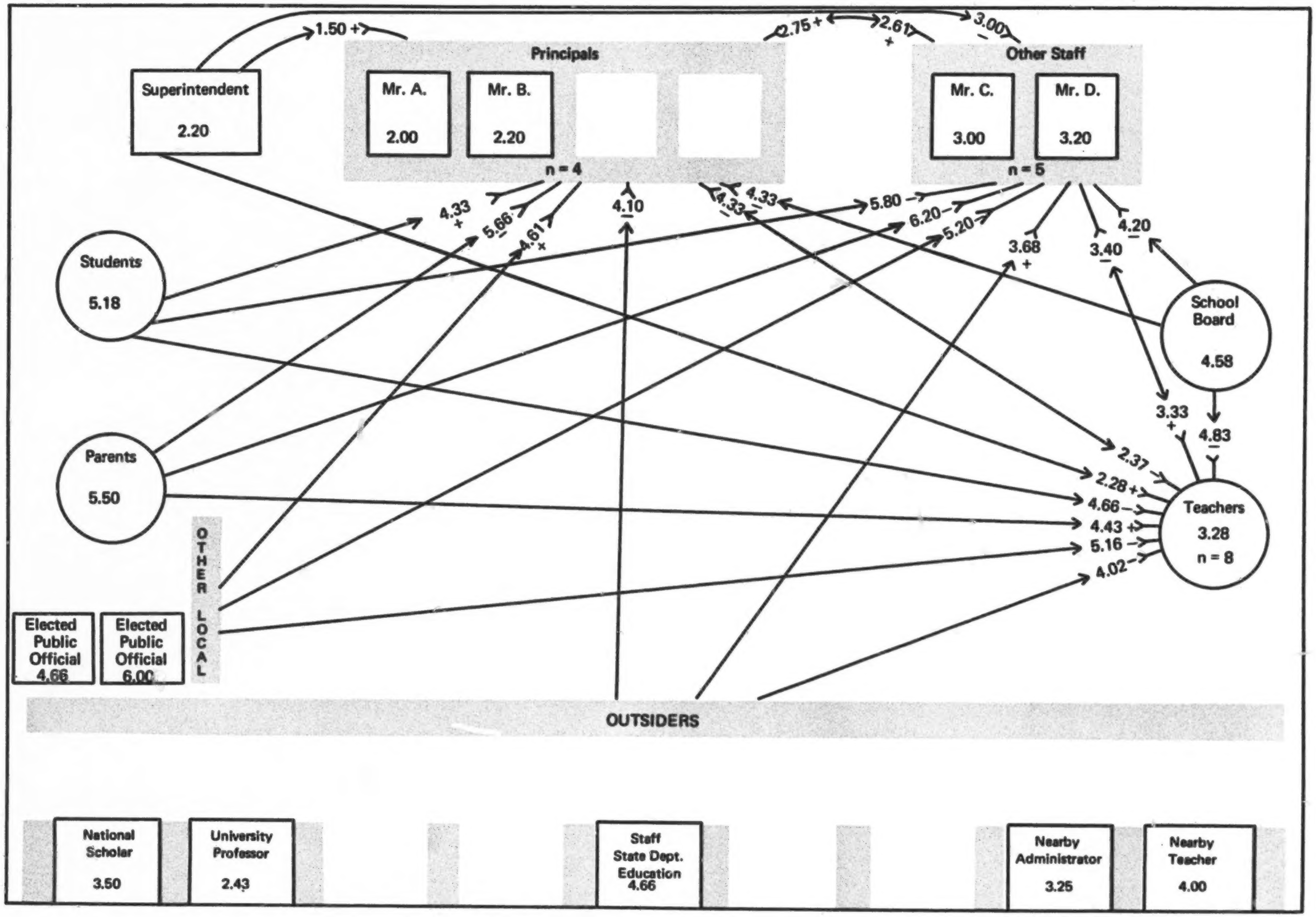

2.00
3.00
Principals
Superintendent
3.00
Mr. A
2.66
Mr. B
2.45
n = 2
Other Staff
Mr. C
3.00
n = 0
3.50
5.00
4.83
3.88
4.00
3.50
Students
3.77
School Board
5.16
Parents
4.61
2.27 +
3.18 –
3.90 +
4.60 –
4.50 +
3.98 +
3.50
5.50
Teachers
2.46
n = 13
OTHER LOCAL
Elected Public Official
5.40
OUTSIDERS
County Superintendent
6.20

FIGURE 3 -- COMMUNICATIONS NETWORK DISTRICT 2



Superintendent 2.20
Principals
Mr. A. 2.00
Mr. B. 2.20
n = 4
Other Staff
Mr. C. 3.00
Mr. D. 3.20
n = 5
1.50 +
2.75 +
2.61 +
3.00 –
Students 5.18
Parents 5.50
School Board 4.58
Teachers 3.28 n = 8
4.33 +
5.66 –
4.61 +
4.10 –
4.33 –
4.33 –
5.80 –
6.20 –
5.20 –
3.68 +
3.40 –
4.20 –
3.33 +
4.83 –
2.37 –
2.28 +
4.66 –
4.43 +
5.16 –
4.02 –
OTHER LOCAL
Elected Public Official 4.66
Elected Public Official 6.00
OUTSIDERS
National Scholar 3.50
University Professor 2.43
Staff State Dept. Education 4.66
Nearby Administrator 3.25
Nearby Teacher 4.00

FIGURE 4 — COMMUNICATIONS NETWORK DISTRICT 3

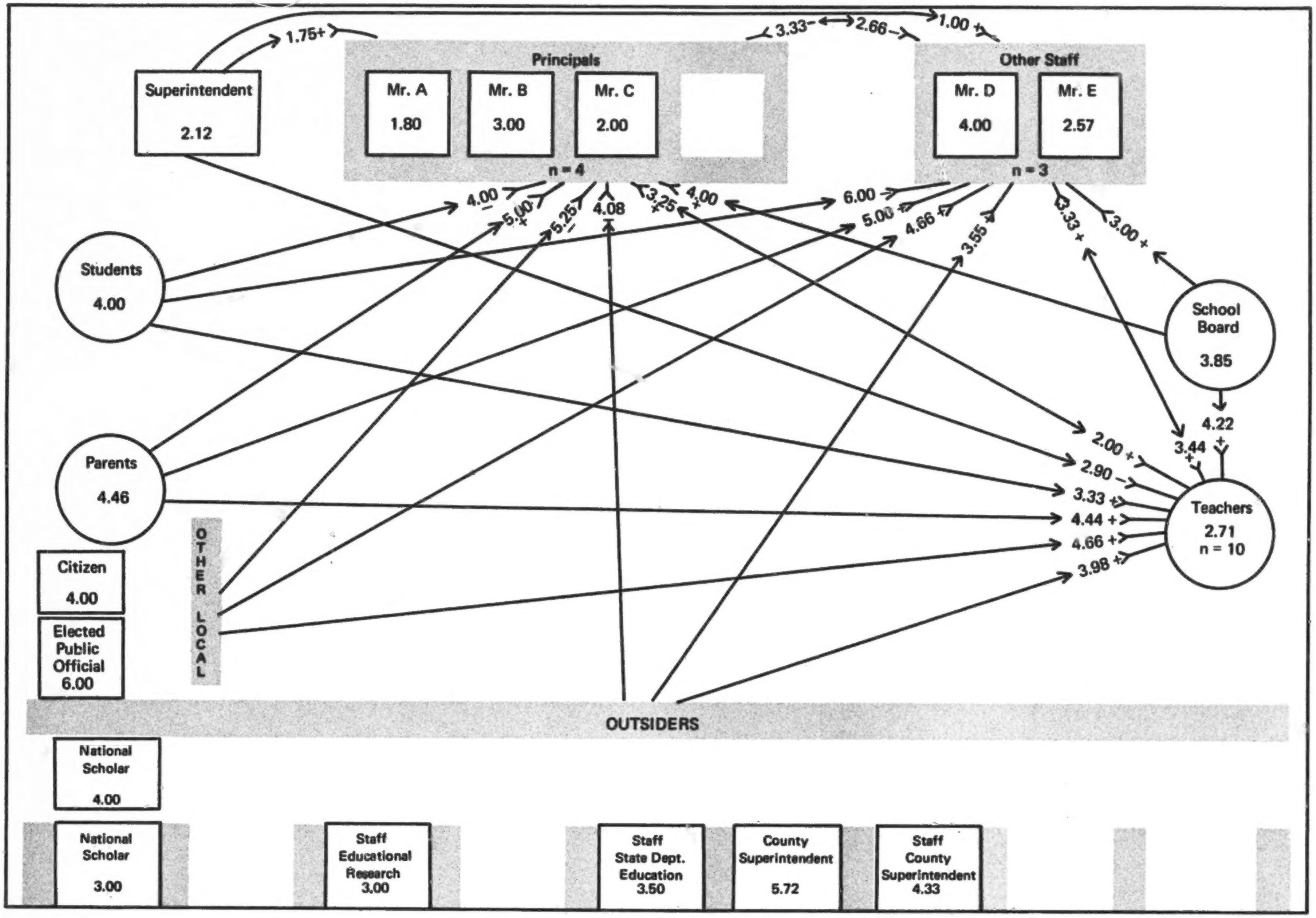

Superintendent
2.12
1.75+
Principals
Mr. A
1.80
Mr. B
3.00
Mr. C
2.00
n = 4
3.33
2.66
1.00 +
Other Staff
Mr. D
4.00
Mr. E
2.57
n = 3
4.00 –
5.00 +
5.25 –
4.08
3.25 +
4.00 +
6.00
5.00
4.66 +
3.55
3.33 +
3.00 +
Students
4.00
Parents
4.46
School Board
3.85
4.22 +
3.44 +
2.00 +
2.90 –
3.33 +
4.44 +
4.66 +
3.98 +
Teachers
2.71
n = 10
Citizen
4.00
Elected Public Official
6.00
OTHER LOCAL
OUTSIDERS
National Scholar
4.00
National Scholar
3.00
Staff Educational Research
3.00
Staff State Dept. Education
3.50
County Superintendent
5.72
Staff County Superintendent
4.33

FIGURE 5 – COMMUNICATIONS NETWORK DISTRICT 4

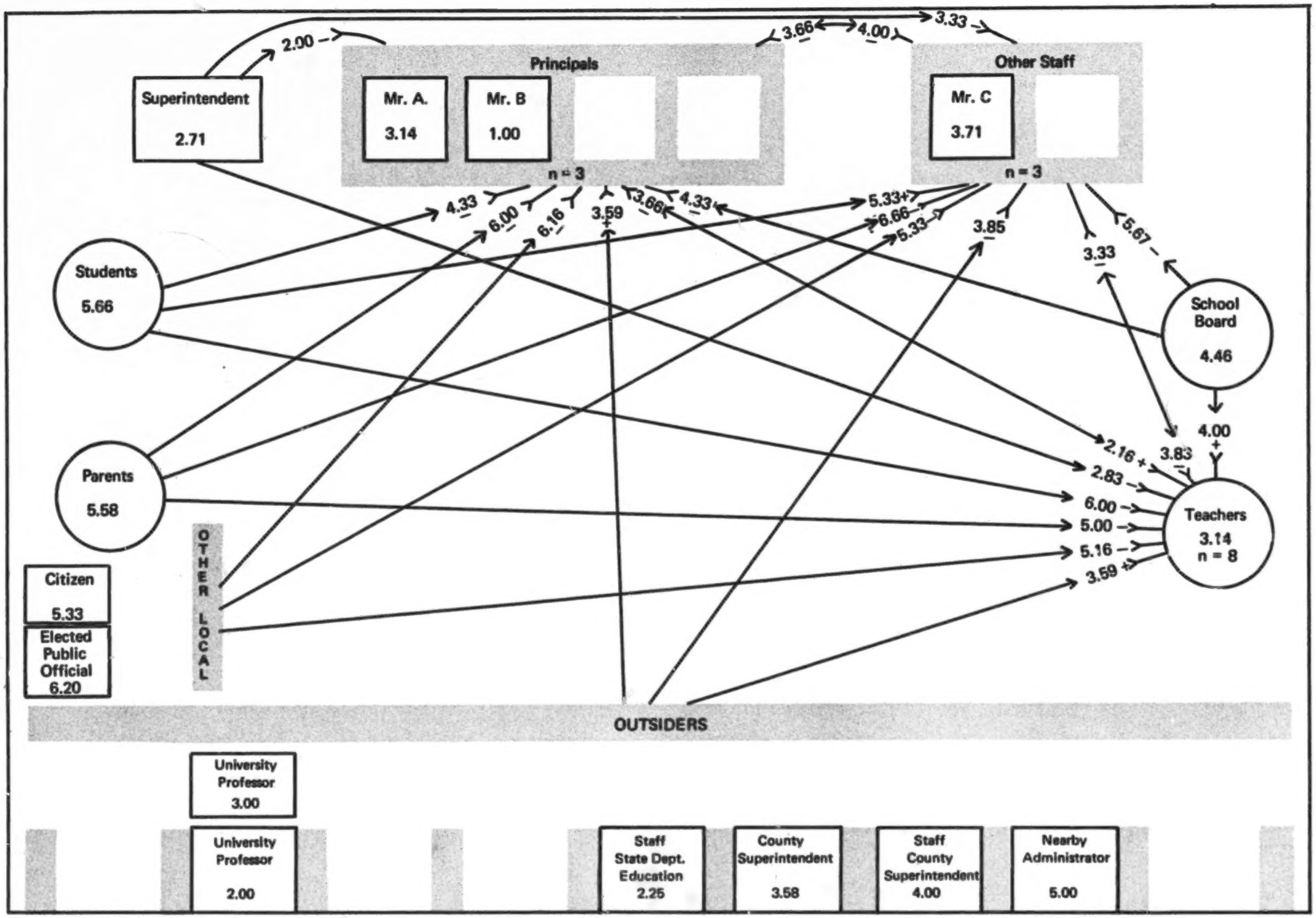

Superintendent
2.71
2.00
Principals
Mr. A.
3.14
Mr. B
1.00
n = 3
3.66
4.00
3.33
Other Staff
Mr. C
3.71
n = 3
4.33
6.00
6.16
3.59
3.66
4.33
5.33
6.66
5.33
3.85
3.33
5.67
Students
5.66
Parents
5.58
School Board
4.46
4.00
3.83
2.16
2.83
6.00
5.00
5.16
3.59
Teachers
3.14
n = 8
Citizen
5.33
Elected Public Official
6.20
OTHER LOCAL
OUTSIDERS
University Professor
3.00
University Professor
2.00
Staff State Dept. Education
2.25
County Superintendent
3.58
Staff County Superintendent
4.00
Nearby Administrator
5.00

FIGURE 6 — COMMUNICATIONS NETWORK DISTRICT 5

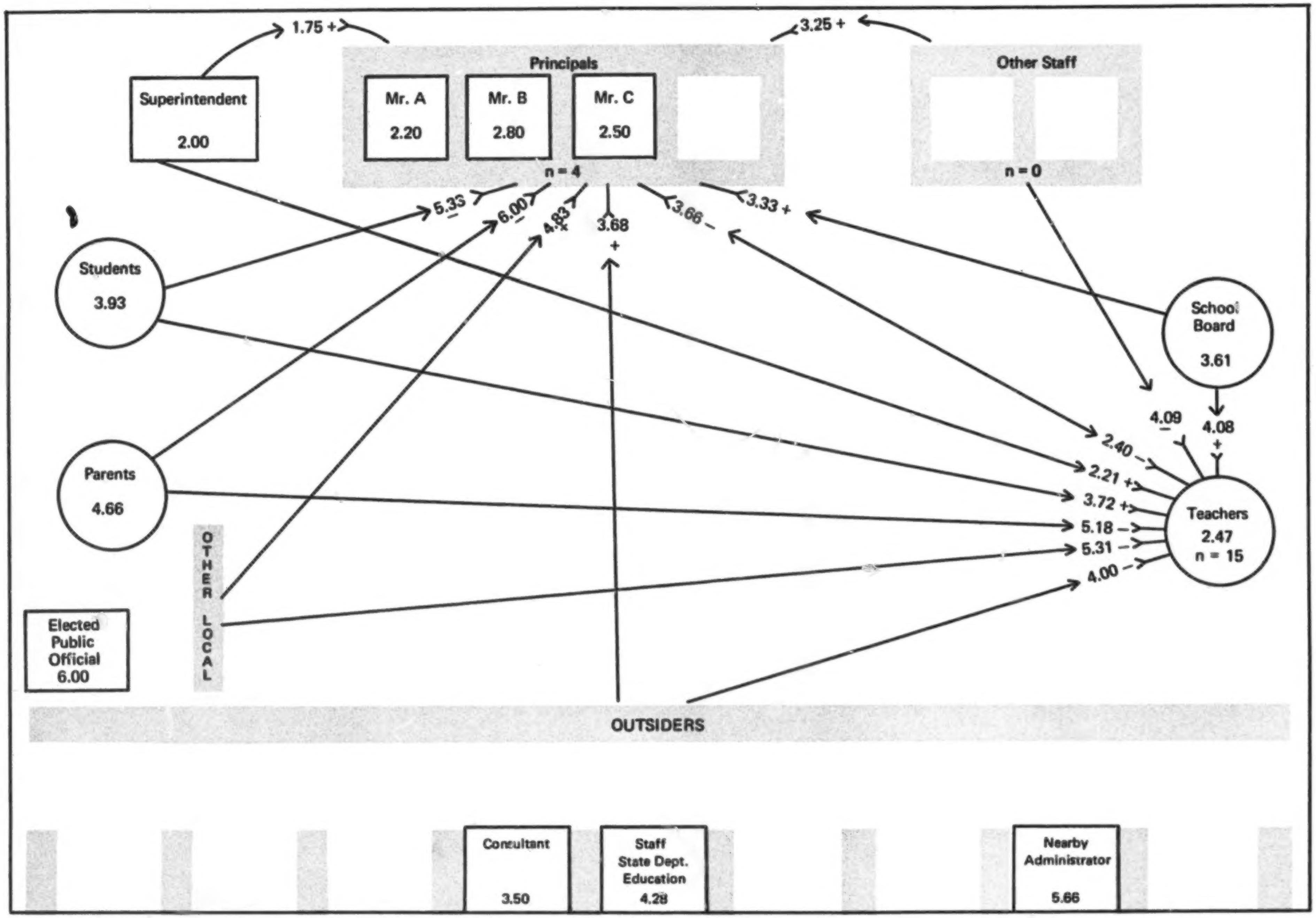

1.75 +
3.25 +
Superintendent
2.00
Principals
Mr. A
2.20
Mr. B
2.80
Mr. C
2.50
n = 4
Other Staff
n = 0
5.33
6.00
4.83
3.68
+
3.66 –
3.33 +
Students
3.93
Parents
4.66
School Board
3.61
4.09
4.08
+
2.40 –
2.21 +
3.72 +
5.18 –
5.31 –
4.00 –
Teachers
2.47
n = 15
OTHER LOCAL
Elected Public Official
6.00
OUTSIDERS
Consultant
3.50
Staff State Dept. Education
4.28
Nearby Administrator
5.66

FIGURE 7 – COMMUNICATIONS NETWORK DISTRICT 6

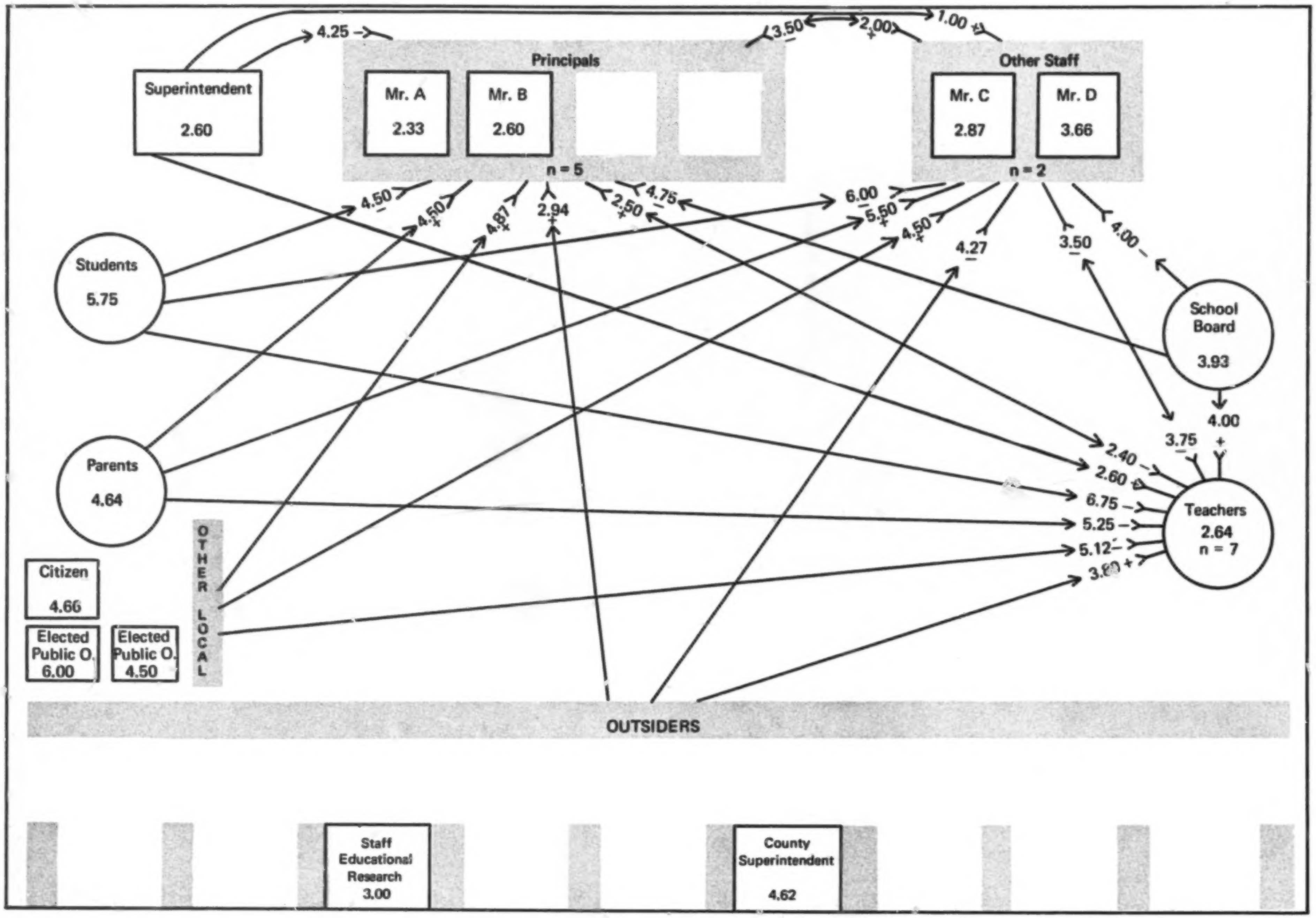

Superintendent
2.60
4.25
Principals
Mr. A
2.33
Mr. B
2.60
n = 5
Other Staff
Mr. C
2.87
Mr. D
3.66
n = 2
3.50
2.00
1.00
4.50
4.50
4.87
2.94
2.50
4.75
6.00
5.50
4.50
4.27
3.50
4.00
Students
5.75
Parents
4.64
School Board
3.93
4.00
3.75
Teachers
2.64
n = 7
2.40
2.60
6.75
5.25
5.12
3.80
OTHER LOCAL
Citizen
4.66
Elected Public O.
6.00
Elected Public O.
4.50
OUTSIDERS
Staff Educational Research
3.00
County Superintendent
4.62

FIGURE 8 — COMMUNICATIONS NETWORK DISTRICT 7

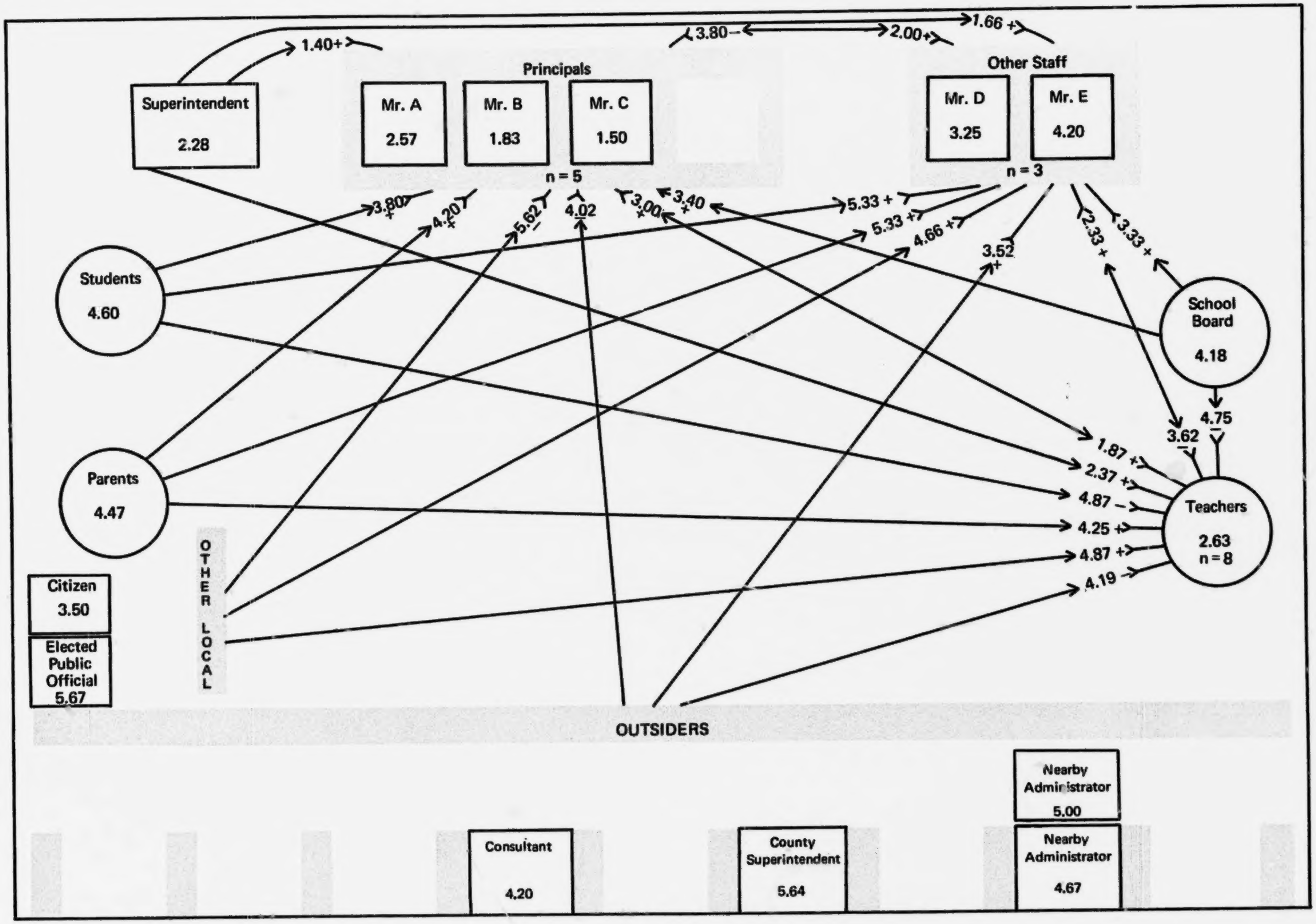

Superintendent
2.28
1.40+
Principals
Mr. A
2.57
Mr. B
1.83
Mr. C
1.50
n = 5
3.80–
2.00+
1.66 +
Other Staff
Mr. D
3.25
Mr. E
4.20
n = 3
3.80+
4.20+
5.62–
4.02
3.00+
3.40+
5.33 +
5.33 +
4.66 +
3.52+
2.33 +
3.33 +
Students
4.60
Parents
4.47
Citizen
3.50
Elected Public Official
5.67
OTHER LOCAL
School Board
4.18
4.75–
3.62–
1.87 +
2.37 +
4.87 –
4.25 +
4.87 +
4.19 –
Teachers
2.63
n = 8
OUTSIDERS
Nearby Administrator
5.00
Nearby Administrator
4.67
Consultant
4.20
County Superintendent
5.64

FIGURE 9 – COMMUNICATIONS NETWORK DISTRICT 8

The climate for innovation adoption

Characteristics of the eight school districts are shown in Table 6 where initiating mechanism are reported and in Table 7 with its report about sustaining mechanisms. The data in the tables are ranked. (Rank 1 is assigned to the district which was best in the characteristic and rank 8 is assigned to the district which was poorest in the characteristic.) Ranks are relative measures, and the reader must remember that all of the districts that we visited were innovative districts. While a district may be ranked eight, or last, among these districts, that district probably stands in the upper half of all districts with respect to innovation adoptions, particularly in team teaching and professional staff development programs.

Districts have different patterns for receiving new information (see Table 6). A district may be first among the eight districts with respect to residents' participation in professional activities and, at the same time, be eighth in frequency of contact with certain specified types of outsiders (see District 3 in its professional staff development activities). A district may be first among the eight districts in reading about professional staff development programs, and be sixth in reading about team teaching (see District 8). Districts also have different patterns of sustaining mechanisms, depending upon the particular innovation adoption being considered.[1]

District characteristics controlling the adoption climates (I x S) appear to vary within the same district as a function of the type of innovation being considered. The climate for changes to team teaching may be better than the climate for changes in professional staff development programs. The climate for educational television may be better than the climate for changes in pupil attendance areas. Probably no practitioner of the social and political arts in a community will be surprised by this apparent variety in climate for specific adoptions.

The model suggests that any combination of an initiating mechanism and a sustaining mechanism may create a climate sufficient for innovation adoption. This implies, according to our mathematical

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[1] Two of the initiating mechanisms shown in Table 6 and six of the sustaining mechanisms shown in Table 7 show identical ranks for the mechanism's influence on both professional staff development and team teaching. This occurred because measures from the communication nets (a, b, c, d, e, h) were developed using information from all of the residents, irrespective of the interview topic about team teaching or professional staff development, or because (JV, LV) we had not defined the sustaining variable we wished to measure sufficiently well to include an adequate number of questions about that sustaining mechanism in our questionnaires and rating scales.

TABLE 6

DISTRICT CHARACTERISTICS: INITIATING MECHANISMS (I)

showing district rank, and sometimes tied ranks, among eight districts

Name of initiating mechanism	professional staff development adoptions DISTRICTS 1	2	3	4	5	6	7	8	team teaching adoptions DISTRICTS 1	2	3	4	5	6	7	8
AR Reading	3	8	4	2	5	6	7	1	1	7.5	5	7.5	3.5	2	3.5	6
BR Professional	3	6.5	1	4	8	6.5	5	2	3	5	1	7	6	2	8	4
CR Study	3.5	5	1.5	6	1.5	7	8	3.5	8	5	2.5	4	2.5	7	6	1
DR Visits to	4	5.5	5.5	2.5	1	7	8	2.5	7	5	3	1.5	1.5	6	4	8
ER Visits by	2	8	3	4	6	5	7	1	3.5	8	7	6	5	3.5	1	2
FV New staff	6	6	1.5	3.5	1.5	3.5	8	6	3.5	3.5	1	3.5	6	3.5	7.5	7.5
a Number of outsiders contacted	1	6	8	4.5	3	7	4.5	2	1	6	8	4.5	3	7	4.5	2
d Influence from outsiders	8	6.5	6.5	4	1.5	3	1.5	5	8	6.5	6.5	4	1.5	3	1.5	5
Average rank on I's	3.8	6.4	3.9	3.8	3.4	5.6	6.1	2.9	4.4	5.8	4.3	4.8	3.6	4.3	4.5	4.4

TABLE 7

DISTRICT CHARACTERISTICS: SUSTAINING MECHANISMS (S)
showing district rank, and sometimes tied rank, among eight districts

Name of Sustaining Mechanism	professional staff development adoptions								team teaching adoptions							
	DISTRICTS								DISTRICTS							
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
JV Financial support	4	4	2	7	7	1	4	7	4	4	2	7	7	1	4	7
KV Management interest	8	6	1.5	4.5	7	1.5	4.5	3	7.5	3	2	6	5	1	4	7.5
LV Community interest	7	5	3	2	7	1	4	7	7	5	3	2	7	1	4	7
MR Residents' involvement in community affairs	4	8	2	7	1	6	3	5	4.5	6.5	3	8	4.5	2	1	6.5
b Influence felt by teachers from management	8	7	3	4	5.5	2	5.5	1	8	7	3	4	5.5	2	5.5	1
c Diversity of communication nodes	4	8	5	3	1	7	6	2	4	8	5	3	1	7	6	2
e Influence felt by educators from board	8	7	2	1	4	2	5	3	8	7	2	1	4	2	5	3
h Educators' sensitivity to influence from many sources	5	3	7	1.5	8	4	6	1.5	5	3	7	1.5	8	4	6	1.5
Average rank on S's	6.0	6.0	3.2	3.8	5.1	3.1	4.6	3.7	6.0	5.4	3.4	4.1	5.3	2.5	4.4	4.4

statement of the model (see Appendix H), that all of the measures of the initiating mechanisms and sustaining mechanisms should be multiplied by each other. We substituted an average rank for all of the district's initiating mechanisms; we made a similar substitution for the sustaining mechanisms; and then produced a single product (I x S) which is shown in Table 8.

Since we are using ranked data, the smallest product indicates the districts with the best climate for innovation adoption, and the largest product indicates the district with the poorest climate for adoption. The districts are ranked in order by their climate for adoptions of innovations in professional staff development programs and in team teaching programs.

THE MODEL'S VALIDITY IN DESCRIBING ADOPTION PERFORMANCE: p

Initiating and sustaining mechanisms form the climate for innovation adoption, according to our model. If our model is correct, these climates should be related to innovation adoption performance (p). A test of the model requires that school district innovation adoption performance (p) be measured.

Measures of innovation adoption performance (p)

Six measures of adoption performance were developed from the information recorded by visitors and residents. These measures represent a larger number of ways by which adoption performance could be gauged. The measures are listed in Table 9; they are described in the paragraphs which follow; and they are described in greater detail in Appendix E.

> Extent. The extent of innovation adoption in the school district was judged by the visitors. They considered all of the schools and educational programs in the district and rated the extent to which the adopted innovation had spread from school to school, across classes in a grade level, and from one grade level to another to the full limits for which the adoption seemed appropriate to the district's educational program.
>
> Best Educational Practice. The degree to which the adoption conforms to the ideal of best educational practice was rated by the visitors. The rating was made on the basis of their experience in the several school districts, their reading of the professional literature about professional staff development programs and about team teaching, and on their experience in other activities related to organizational behavior and public education.

TABLE 8

THE CLIMATE FOR INNOVATION ADOPTIONS (IxS)

DISTRICT	professional staff development adoptions				team teaching adoptions			
Districts	I	S	IxS	Climate Rank	I	S	IxS	Climate Rank
1	3.8	6.0	22.8	6	4.4	6.0	26.4	7
2	6.4	6.0	38.4	8	5.8	5.4	31.3	8
3	3.9	3.2	12.5	2	4.3	3.4	14.6	2
4	3.8	3.8	14.4	3	4.8	4.1	19.7	5
5	3.4	5.1	17.3	4	3.6	5.3	19.1	3
6	5.6	3.1	17.4	5	4.3	2.5	10.8	1
7	6.1	4.6	28.1	7	4.5	4.4	19.8	6
8	2.9	3.7	10.7	1	4.4	4.4	19.4	4

TABLE 9

MEASURES OF SCHOOL DISTRICT ADOPTION PERFORMANCE (p)

Name of Measure	Code for measure	Information recorded by:	Number of Questions Included in Measure
1. Extent of innovation adoption in the school district	WV, WW	visitors	2
2. Degree to which adoption conforms with best educational practice	VV, VW	visitors	2
3. Rate of spread of adoption through the school district	TV, TW	visitors	2
4. Degree to which adoption aids the school district in achieving its educational objectives	UR	residents	1
5. Degree to which enthusiasm for, and lack of resistance to, adoption is communicated by professional staff	PV	visitors	3
6. Personal commitment through work and public statements to support innovation adoption	YR	residents	4

Rate of Spread. The rate of spread of the adoption through the school district was rated by the visitors after learning from interviews when the adoptions were first tried in the district. The visitors also considered the practical limits in the district within which the innovation could appropriately be used.

Aids School Objectives. The degree to which the adoption aids the school district in achieving its educational objectives was judged by the residents. They could indicate the degree to which the adoption assisted, had no effect on, or hindered the achievement of the district's educational objectives.

Professional Staff Enthusiasm. The degree to which enthusiasm for, and lack of resistance to, the adoption was communicated to the visitors by the professional staff and rated by the visitors.

Personal Commitment. The personal commitment of the residents in support of the innovation adoption was described by them. They indicated whether or not they had publicly stated their support for the innovation, how well informed they felt about the innovation, whether they had been active in exploring the possibility for the adoption, and the amount of effort they had spent in generating support for the adoption.

District performance in innovation adoption is reported in Table 10. Measures developed from residents' judgments summarize the reports of about nine interviewees for professional staff development programs and an equal number of interviewees for team teaching innovations. Measures developed from visitors' judgments were developed from two visitors after each had interviewed four or five people regarding team teaching and an equal number about professional staff development innovations.

Residents and visitors generally agree in their judgments about innovation adoption performance for team teaching, and agreed to a somewhat lesser extent in their judgments about adoption of innovations in professional staff development. This can be seen by inspecting Table 10, but is easier to see by examining the correlations among measures of adoption performance (p) presented in Appendix B.

We have combined the six measures of innovation adoption performance into an average rank as shown in Table 10. An average rank is used as the measure of innovation adoption performance (p) for both team teaching innovations and professional staff development innovation.

TABLE 10

DISTRICT CHARACTERISTICS: ADOPTION PERFORMANCE (p)
showing district rank, and sometimes tied ranks, among eight districts

	professional staff development adoptions								team teaching adoptions							
	DISTRICTS								DISTRICTS							
Name of Performance indicator	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
WV, WW Extent	8	7	5	4	1	2.5	6	2.5	7	2	3	6	5	1	8	4
VV, VW Best educational practice	7	6	2	1	5	3	8	4	6	4	1	5	8	2	7	3
TV, TW Rate of spread	8	7	5	2.5	2.5	4	6	1	7	2	3	4	6	1	8	5
UR Aids school objectives	3	1.5	1.5	4.5	7	6	4.5	5	1	7	2	5	6	3	8	4
PV Professional staff enthusiasm	5	1.5	3.5	7	7	3.5	7	1.5	5.5	7.5	2.5	1	4	2.5	7.5	5.5
YR Personal commitment	4.5	6	7	1	3	8	4.5	2	5	3	2	4	8	6	7	1
Average rank on p's	5.9	4.8	4.0	3.3	4.3	4.5	6.0	2.7	5.3	4.3	2.3	4.2	6.2	2.6	7.6	3.8
District Rank	7	6	3	2	4	5	8	1	6	5	1	4	7	2	8	3

Do I and S describe adoption performance?

The correlation between climate (I x S) for innovation adoption and actual innovation adoption performance (p) is shown in Figure 10 for both professional staff development and for team teaching. There is clear statistical support, even from this small sample of eight innovative districts, that school districts with a favorable innovation adoption climate, as indicated by the presence of initiating and sustaining mechanisms, also show high performance in innovation adoption. (See Statement 5, Appendix H.) It is important to remember that all of the districts participating in this study are innovative districts, probably well above the average for the school districts in their states.

Is a combination of I and S necessary to get an adoption?

The model says that some imported idea (initiating mechanism and some condition within the school district (sustaining mechanism) are required in combination to cause an innovation adoption. If this is true, the absence of either will result in no adoption. The truth of these ideas can be tested only by measures which exceed in perfection the simple measures we used. However, by comparing the relationship of a combination of initiating and sustaining mechanisms to adoption performance with the relationship of each mechanism alone to adoption performance, some rough indication of the truth of this proposition can be obtained. (See Statements 6 and 7 in Appendix H.) The data for these comparisons are presented in Table 11. It can be seen that three of the four comparisons suggested by the model are in the predicted direction ($.90 > .59$, $.90 > .52$, $.59 > .23$, $.59 \ngtr .67$). While the findings do not support the model unequivocally, they are encouraging. Measures of initiating mechanisms alone and measures of sustaining mechanisms alone are positively correlated with innovation adoption performance (p) because these mechanisms are always present in some force in situations where adoptions do occur, thereby guaranteeing that each mechanism alone will correlate positively with adoption performance.

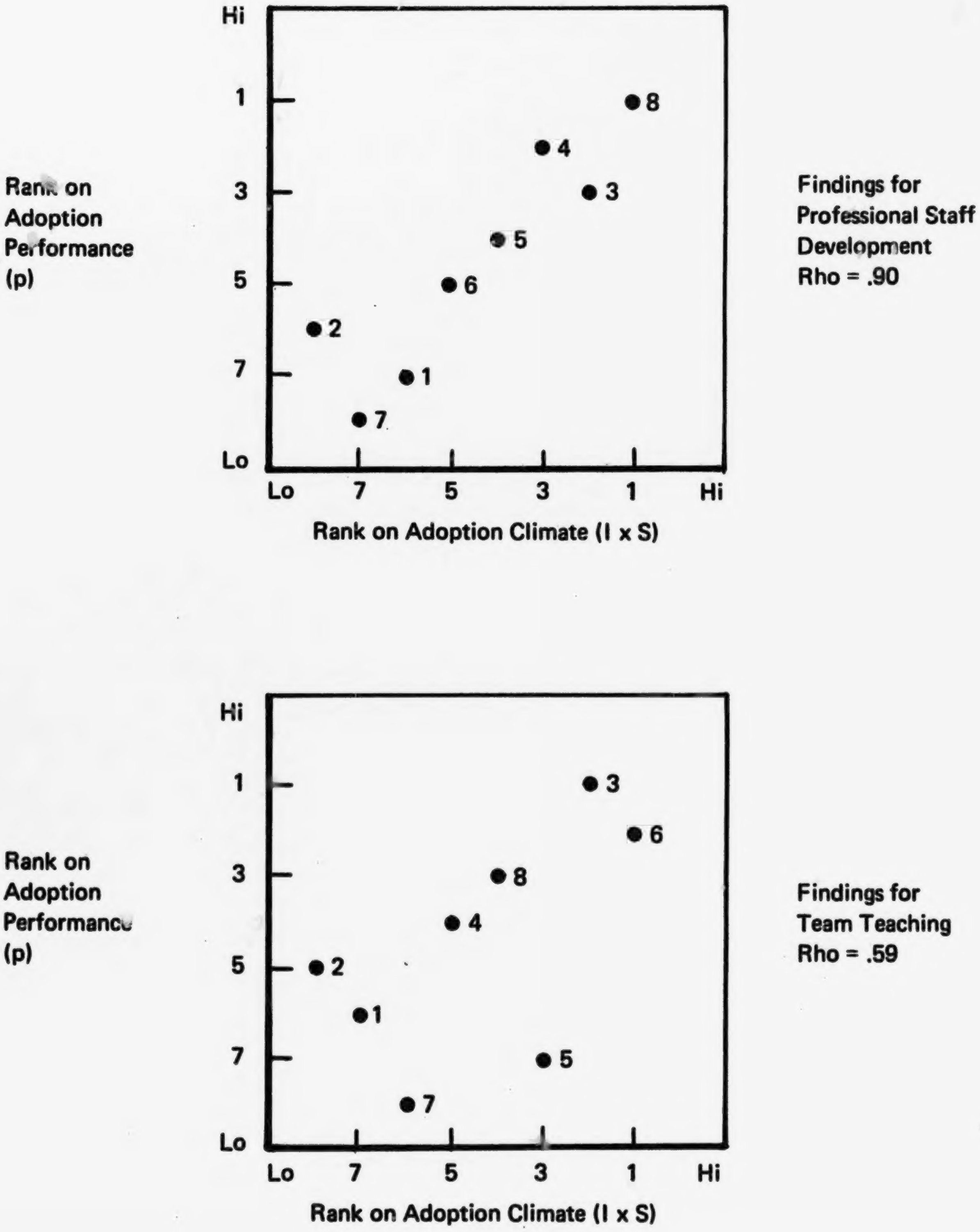
Are some I's more effective than other I's, some S's more effective than other S's?

Some initiating mechanisms may be more effective in producing changes in practice than are others; similar differences in leverage are likely to operate for the sustaining mechanisms as well. We examined two kinds of data to get indications about which initiating and sustaining mechanisms have the high leverage.

We asked residents to report the influence a particular activity had had upon their own position and opinion regarding a specified innovation. Their answers are summarized in Table 12. The table lists the activities in approximate rank order from most influential to least influential. The activities include a variety of initiating mechanisms

READER'S GUIDE TO FIGURE 10

The two diagrams in Figure 10 show the relationship of innovation adoption climate to innovation adoption performance (p) for both professional Staff Development and Team Teaching in the eight districts. Each diagram shows the individual district's position with a dot which is identified by the district number. For example, in the bottom diagram, District 6 falls at rank 1 for (IxS) and at rank 2 for (p) in Team Teaching.



Findings for
Professional Staff
Development
Rho = .90

Findings for
Team Teaching
Rho = .59

FIGURE 10: RELATIONSHIP OF CLIMATE FOR INNOVATION ADOPTION TO ADOPTION PERFORMANCE

TABLE 11

THE ROLES OF INITIATING (I) AND SUSTAINING (S) MECHANISMS IN DISTRICT INNOVATION ADOPTION PERFORMANCE (p)

Showing rank-order correlation coefficients

N = 8

Role	Relationship to p	
	for professional staff development adoptions	for team teaching adoptions
I and S interacting (I x S) to "cause" adoption (p)	.90	.59
I alone "causing" adoption (p)	.59	.23
S alone "causing" adoption (p)	.52	.67

TABLE 12

RESIDENTS' RATINGS OF THE INFLUENCE OF VARIOUS ACTIVITIES AND INFORMATION ON THEIR OWN POSITIONS ABOUT AN INNOVATION ADOPTION

Listed in approximate rank order from most to least influential

Type of Mechanism	Item	Influence on Professional Staff Development[a]	Influence on Team Teaching[a]
S	Discussions with our local school adminstrators	1	1
F	Student response to its trial in our school	1	1
I	My discussions with others during a workshop	1	1
I	Professional journals about education	2	1
I	My summer (or evening) course at a university	1	2
I	Books about education	2	2
I	My visits to a school not too far from our school(s)	2	2
I	Meetings of a professional society to which I belong	2	3
S	A period of trial in our school made possible by federal and state funds	2	4

---

[a] 1=important influence 2=moderate influence 3=a little influence 4=no influence

TABLE 12

(continued)

Type of Mechanism	Item	Influence on[a] Professional Staff Development	Influence On[a] Team Teaching
I	Visits by people from other places to our school	2	3
I	Research reports by an educational research organization	2	2
I	Lecture(s) by a visitor to our town (school)	2	2
I	Articles in the public press	3	2
I	My reading in a nearby university library	3	2
I	Visits by professional staff from the state department of education	3	4
I	Television broadcasts on the topic	3	4
I	Visits by a publisher or other supplier of school materials	3	4
S	A special assignment I assumed by reducing other responsibilities I had for matters of education	4	4
F	Businessmen in my town	4	4
I	My visits to an educational research organization	4	4
S	Activities or programs of a citizen's organization, such as the League of Women Voters	4	4
I	My full-time study during a sabbatical leave	4	4

---

[a] 1=important influence 2=moderate influence 3=a little influence 4=no influence

and rather few sustaining and feedback mechanisms with the result that Table 12 primarily reports residents' opinions about the relative influence of initiating mechanisms. In our residents' opinion, participation in workshops and university study, as well as the reading of professional literature at home, seem to be most influential. Full-time study during a sabbatical leave, visits to an educational research organization, and visits by publishers' representatives and by professional staff from the State Department of Education seem to have little or no influence, probably because they occur very infrequently. A sustaining mechanism (discussions with our local school administrators) and a feedback mechanism (student response to its -- the innovation's -- trial in our school) are reported as being important influences.

The leverage of the several initiating and sustaining mechanisms may be better understood (see Statements 8 and 9, Appendix H) by relating measures of each mechanism to the school districts' innovation adoption performance (p). The data from this analysis is presented in Table 13. Among the initiating mechanisms, it shows the hiring of new staff and attendance at professional meetings to have high leverage in influencing team teaching adoptions, while reading the professional literature and several other activities seem to have about equal leverage in influencing innovation in professional staff development programs.

The expressed interest in innovation from the superintendent and principals and expressed interest in innovation from the school board are sustaining mechanisms with high leverage. Community interest in education seems to have an important effect upon the adoption of team teaching. A recent history of increasing financial support for public education in the school district may have different effects upon innovations; these upward changes in financial support seem to have encouraged innovation in team teaching and may have discouraged innovation in professional staff development programs, but these are very uncertain findings if they can be called findings at all. The correlations from which Table 13 was developed are presented in Appendix B.

Indeed, the data do not deny and may support the idea that some initiating mechanisms have more leverage than others, with professional activities and employment turnover in district teaching and administrative staff likely to be among the high-leverage initiating mechanisms. Among the sustaining mechanisms, district management interest in innovation (including the school board's interest), educators' sensitivity to influence from many sources, and community interest in education are likely to be among the more effective sustaining mechanisms.

Do S's have more effect on adoption performance than I's?

Our thoughts about the innovation adoption processes suggest that sustaining mechanisms are more influential in affecting innovation adoption performance than are the initiating mechanisms. In effect, most citizens and educators in most school districts probably have ideas

TABLE 13

THE LEVERAGE OF INITIATING AND SUSTAINING MECHANISMS IN ADOPTION PERFORMANCE (p)

showing mean rank-order correlation coefficients between each mechanism and all p's

Professional Staff Development	Team Teaching		Name of Mechanism
Initiating Mechanisms			
.21	.48	FV	New Staff
.18	.58	BR	Professional
.16	.15	CR	Study
.28	-.16	AR	Reading
.26	-.12	DR	Visits to
.21	-.34	ER	Visits by
-.01	-.33	d	Influence from outsiders
-.04	-.38	a	Number of outsiders contacted
Sustaining Mechanisms			
.35	.42	b	Influence felt by teachers from management
.33	.36	e	Influence felt by educators from the Board
.23	.23	h	Educator's sensitivity to influence from many sources
.22	.28	KV	Management interest
.03	.33	LV	Community interest
-.20	.30	JV	Financial support
.21	-.14	C	Diversity of communication nodes
-.09	-.14	MR	Residents involvement in community affairs

about how educational practices should be changed. The most frequent barriers to change are the absence of sustaining mechanisms. These guesses about the greater leverage of sustaining mechanisms, as compared with initiating mechanisms, can be checked by examining the data in Table 13. In general, the sustaining mechanisms have larger positive correlations with innovation adoption performance than do the initiating mechanisms. The data tend to support the model's statement that sustaining mechanisms, in general, have greater leverage in affecting innovation adoption than do the initiating mechanisms. (See Statement 11, Appendix H.)

Do I's shape the particular adoption?

We do not know. The model says that initiating mechanisms are the architecting forces for the adoption, even though the sustaining mechanisms have more influence upon whether or not the adoption is made. While we formulated a statistical test for this idea (see Statement 10, Appendix H), the measures used in this study are inappropriate for use in the test. First, we combined data from team teaching and professional staff development interviews while developing our communication nets, causing several of our measures of the sustaining mechanisms in particular to lose any specificity they might have for the two types of innovations we studied (in effect, our calculations "stack the cards" in favor of our theory for this particular test, and therefore cannot be used in a rigorous test). Second, we measured initiating mechanisms in some of our questionnaire items in ways which fail to determine whether the particular initiating mechanism, such as reading or attendance at professional meetings, presented to district personnel some innovations rivaling or competing with the particular innovation we discussed with the residents during our interviews. Lacking this information, we cannot tell from our questionnaire data whether the initiating mechanisms primarily imported ideas about only one type of innovation or whether ideas about several kinds of innovations reached the personnel in the school district.

Forgetting the uncertainties of the questionnaire data for a moment, we can say from our observations as sensitive historians that we discovered few instances in which rival innovations designed to satisfy one set of objectives seem to have been discussed or debated by boards or educators or citizens in the district. These observations led us to put in our model the idea that the initiating mechanisms which reach the district by linkage through some person or persons in the district are the shaping or architecting forces for the particular innovation which is adopted. For better or for worse, this makes the particular adoption made by a district a somewhat probabilistic choice. This describes the adoptions we observed without judging whether district selection of a particular adoption should or should not occur in this probabilistic fashion. We feel that it is unrealistic to expect the future behavior of school districts to shift toward purposive, systematic searching activity to discover exactly the "right" adoption which the district should make to satisfy a particular set of objectives and that our model is a realistic description of observed and likely future district behavior.

THE MODEL'S VALIDITY IN DESCRIBING OVERALL PERFORMANCE: P

The most important statements in the model are the ones which relate innovation adoption performance (p) and performance feedback transmissions (F) to the many-faceted overall educational performance of the school district (P). See Statements 2 and 3 in Appendix H. They say that improvements in the overall educational performance of the district are guided by the feedback of information about the district's performance. Feedback which indicates that the district's educational programs have been improved by an innovation will cause the innovation to be retained as part of the district's practice, and feedback which indicates the performance has been harmed will cause the innovation to be modified or discontinued. The statements imply that absence of feedback about performance will allow changes in practice which have no effect, or negative effects, upon overall educational performance of the district to be retained, or allow innovations which have useful effects to be discarded. The statements apply general ideas which have been useful in learning theory for individuals, and in theory governing system design, to changes in the overall behavior of a group of people, the people in a school district who affect its overall performance.

A test of these statements requires that we obtain measures of the presence and effectiveness of feedback transmissions (F) and measures of overall educational performance (P) of the school district. Measures of overall educational performance of school districts are generally recognized to be difficult to obtain and are declared by some to be beyond measurement. Important attempts to develop and use measures of the many aspects of overall educational performance have been made (Coleman et al, 1966; Kiesling, 1967). Some information was available from the data supplied by visitors and residents in our study which allowed us to develop a measure of overall performance and measures of feedback mechanisms.

A measure of overall performance (P)

Residents provided a description of their own view of themselves in their educational role, a description of their esteem of themselves in that role. The professional background and personal involvement in educational matters of our interviewees qualified them as being informed about public education in general, and informed about their own role in their school district in particular. We judged their self-report of their performance -- collected as it was by direct report to the study team with the foreknowledge that the individual's responses would not be available to others in their district or to anyone outside the study team -- to be a reasonable approximation of overall school district performance. It has been found that, in general, individuals are able to, and do, report past achievements and their own job performance relatively accurately when permitted to make that report as autobiographical data. This finding has been confirmed repeatedly in the testing of biographical questionnaires for use in employment screening. Residents described their performance in response to ten questions.

> Self Esteem in Educational Role. The degree to which residents perceived themselves as well prepared for the particular role they have in public education was reported by them. In describing their self-esteem in their educational role, they considered their preparation for their job, their competence, how well they were liked by peers and superiors, their motivation and industriousness, their skill in communicating about educational matters, and their ability to make decisions about educational matters. This measure is listed in Table 14.

In general, residents report high self-esteem. We interpreted the reports about the district's performance by accumulating reports of the several residents in a district who had been interviewed about team teaching, letting that summary report be the description of the district's overall performance as seen by those involved in the adoptions related to team teaching. It is clearly subject to the possibility of important bias due to sampling error since we sought questionnaire responses from only nine or ten people in a school district with respect to the team teaching program, for example. See Appendix E.

This measure of overall performance of the school district is only one indicator. Ideally, multiple indicators of performance would be used to describe the school district's performance. Furthermore, the indicators would be focused upon the educational benefits likely to result from the particular adoption being studied. For example, the adoption of team teaching in high school instruction in the social sciences would be assessed by indicators of the school district's students knowledge about the social sciences, skill in obtaining new knowledge which they can use in their own lives to guide their choices in social and political and economic matters, the responsibility which they demonstrate in assuming a personal role in community and business affairs, and so on. Measures of this kind were not available within the scope of this study. We regard the single measure we used as a very modest, and only marginally adequate, measure of overall educational performance of the school districts we visited.

Measures of feedback mechanisms (F)

Three measures of school district performance feedback transmissions (F) were available from the reports of visitors and residents. They are listed in Table 14. The measures describe the district's

TABLE 14

MEASURES OF SCHOOL DISTRICT PERFORMANCE FEEDBACK TRANSMISSIONS (F) AND OVERALL PERFORMANCE (P)

Name of Measure	Code for measure	Information recorded by:	Number of Questions Included in Measure
Measures of performance feedback transmissions			
1. Evaluation practices in the school district	RV, RW	visitors	7
2. Ratings of student influence on teachers' positions about innovation adoption	f	residents	1
3. Ratings of parent influence on teachers' and principals' positions about innovation adoption	g	residents	1
Measure of overall performance			
4. Degree to which residents perceive themselves as well prepared for their own roles in education (their self esteem)	XR	residents	10

assessment and evaluation practices (RV, RW), teachers' ratings of the influence students have on their own positions and opinions about a particular innovation (f), and teachers' and principals' ratings of the influence of parents on their own positions and opinions about a particular innovation (g). Our measures did not provide adequate indication of the direction of the influence (that is, the innovation was good, or the innovation was bad) being transmitted by the communication channels, and therefore they are inadequate for future work in testing our model. Our measures, for the most part, simply indicated the amount or strength of the influence, being more an indication of the presence or absence of feedback transmissions than an indicator of the effect (prolong, or shorten) the transmission has upon the life of the innovation or the correctness (validity) of the information being transmitted. In short, the measures of performance feedback transmissions used in this study are make-do measures developed after the opportunity to conceptualize them with care and build them into our questionnaires had been passed.

The data developed from both the F measures and the P measure are presented in Table 15.

Is a combination of I, S, and F related to overall performance?

The relationship of a combination of initiating, sustaining, and feedback mechanisms (IxSxF) to overall educational performance of the school district (P) is shown in the correlation coefficients in Table 16. The relationship is positive, as predicted, for both professional staff development and team teaching innovations. However, only one of the coefficients (r = .61) is large enough to provide much confidence that the observed outcome is different from what could be expected by chance. This test of the model is analogous to the test proposed in Statement 12 (Appendix H). This test does not deny the model, but it provides inconclusive support.

Do performance feedback transmissions augment adoption performance (p) in improving overall performance (P)?

Without knowledge about the effect of an adoption upon overall performance (P), a school district is without information to guide its decisions about retention and extention of an adoption. With performance information, the district presumably can make its choices to retain, modify, or discontinue an adoption in a way which--over time--continues to improve the overall educational performance of the district. The presence of performance feedback transmissions (F) in the school district, therefore, should be associated with higher overall performance (P). The data for making one test of this proposition are presented in Table 16. The results ($.61 > .57$, $.22 \ngtr .24$) are inconclusive (see Statement 14, Appendix H).

TABLE 15

DISTRICT CHARACTERISTICS: PERFORMANCE FEEDBACK TRANSMISSIONS (F) AND AN OVERALL PERFORMANCE INDICATOR (P)

Showing district rank, and sometimes tied ranks, among eight districts

	professional staff development programs								team teaching programs							
	DISTRICTS								DISTRICTS							
Performance feedback transmissions (F)	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
RV,RW Evaluation practices	6	7	3	2	4	1	8	5	7	5.5	2	4	3	1	8	5.5
f Influence of Student feedback on teachers	4	3	5	1	8	2	7	6	4	3	5	1	8	2	7	6
g Influence of parent feedback on teachers and principals	6	3	5	2	7	8	4	1	6	3	5	2	7	8	4	1
Average rank on F	5.3	4.3	4.3	1.7	6.3	3.7	6.3	4.0	5.7	3.8	4.0	2.3	6.0	3.7	6.3	4.2
Overall performance indicator (P)																
XR Self esteem in educational role	8	5	2.5	1	6.5	6.5	4	2.5	5	7	4	3	6	2	1	8

TABLE 16

THE ROLES OF INITIATING (I), SUSTAINING (S), AND PERFORMANCE FEEDBACK TRANSMISSIONS (F) TO OVERALL SCHOOL DISTRICT PERFORMANCE

showing rank-order correlation coefficients

N = 8

Role	Relationship to P	
	for professional staff development adoptions	for team teaching adoptions
I, S, and F interacting (I x S x F) to affect performance (P)	.61	.22
I and S interacting (I x S) to affect performance	.57	.24

SUPPORT, AND LACK OF SUPPORT, FOR THE MODEL

A summary of the evidence supporting and denying the model is presented in Table 17. The conclusions from statistical checks on the model are reported in words. The support for the model, modest as it is, is surprisingly good in light of the very small sample (N = 8) of districts studied.

TABLE 17

SUPPORT, AND LACK OF SUPPORT, FOR THE MODEL

Statement Number[a]	Proposition Derived from the Model	Conclusions from Statistical Work[b]
5	I and S describe adoption performance	Supported
6,7	A combination of I and S is necessary to get an adoption	Uncertain, Promising
8,9	Some I's are more effective than other I's, some S's more effective than other S's.	Uncertain, Highly Probable
11	S's have more effect on adoption performance than I's.	Uncertain, Promising
10	I's shape the particular adoption.	No data
Like 12	A combination of I, S, and F is related to overall performance.	Uncertain
14	Performance feedback transmissions augment adoption performance in improving overall educational performance	Uncertain

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[a] See Appendix H.

[b] "Supported" is used to describe a statistical outcome which occurs by chance approximately five or fewer times in 100 studies. "Uncertain" is used to describe a likely statistical outcome which occurs by chance approximately six or more times in 100 studies if statistical tests existed by which to assess the proposition. Other words in this column describe the author's subjective assessment of the support for the model appearing in the data in the absence of appropriate statistical tests of the outcome.

V. IMPLICATIONS FOR PRACTICE

The need for practical guidelines for aiding innovation adoption in education is deeply felt. The need, as is often the case, appears to run ahead of the power of social-scientific models for behavior to provide those practical guidelines with assurance. Nevertheless, many thoughtful practitioners and observers in the educational field conclude that it is necessary to continue to formulate and conduct programs stimulating innovation adoption in education. Recognizing this need, we will speculate about the implications for practice which follow from our model of the innovation adoption process and which follow from other observations during our visits in school districts.

Our findings are that the prototypical models describing innovation adoption in school districts are appropriate for some of the adoptions we saw, but are not sufficiently general to provide adequate descriptions of a large proportion of the adoptions we saw. This finding impressed us with the need for a model which could describe most of our observations and led us to create such a model. Checks on the validity of the model look promising. However, the number of school districts studied and the sketchy and incomplete character of some of the measures used to check the model make it impossible to say with a high degree of certainty that the model is accurate and that deducations made from the model to guide policy and affect practice are likely to be successful. We are enthusiastic about the promise for this model, but cannot bring to our speculation about implications for practice the certainty in outcomes which could be brought in larger measure with a well-tested model. We feel the responsibility to share with our readers both our excitement over what may be an important step forward in understanding the innovation adoption processes in education and our realization that our speculations about implications for practice carry with them little more than the support that can come from our own judgment derived from our experience in this study and from our experience in other studies of educational systems from levels of the local district to those at the state department level. With that caution about our statements about implications for practice, we will speculate about what can be done to stimulate innovation adoption in public school districts.

We see two principal audiences for remarks about implications for practice. They are (1) people and organizations in the local school district, and (2) people and organizations outside the local school district.

GUIDELINES FOR THE LOCAL SCHOOL DISTRICT

Achieving innovation adoptions

> Those in the school district who want to increase the rate of innovation adoptions must attend to -- and influence -- two mechanisms, the mechanisms by which information about innovations is imported to the school district and the mechanisms in the district by which the inclination to change practice is supported.

Ideas can be imported in many ways. They enter the school district through reading about education which occurs in the district, through the participation by residents in the school districts in the activities of professional organizations for education, through visiting other shcools, through hiring new teachers and administrators, through being visited by university professors and members of the state department of education and nationally eminent scholars and consultants and researchers, through the in-migration of parents and students who are new to the school district, and through yet other activities.

> One district was located near a military base. Changing military personnel provided a source for new teachers each year as well as some teacher turnover. Several innovations in that district had been imported by these experienced, new (to the district) teaching personnel.

> The frequency with which teachers leave their classrooms, presumably with another teacher or a substitute taking their class, and travel to another school district or even to another classroom in their own district to see someone else's class in operation seems to be very low. Yet if offers some promise -- although clearly not it-works-every-time assurance -- as a means for importing innovative ideas and generating teacher enthusiasm.

> Districts report modest or infrequent use of outsiders as consultants. In only one district did we discover real innovative effects stimulated by a regional educational laboratory. Universities are in more prominence, but there are more universities than "laboratories." State departments of education are infrequently mentioned as visitors. Is this as it should be, or is it an opportunity overlooked by both the local district and the state department?

> The amount of reading about education, as reported on the questionnaires in this study, is very high. Ideas surely must be reaching the school districts at high rates. The public press, as well as the professional press, seems to be helpful in this regard.

Few districts can hope to have even all of its professional personnel -- not to mention school board members and interested citizens -- participating in all of the idea-importing activities, yet every school district can find some opportunity by which ideas can be imported.

The inclination to change education processes by adopting innovations needs to be sustained. This can be accomplished through an active interest on the part of members of the community in the public educational system in their district.

> One district had rapidly growing upper middle class housing developments in its boundaries, increasing its enrollment at rapid rates and also providing public attitudes supporting a rapidly rising tax rate, not to mention the rising assessed valuation and publicly voted increasing bonded indebtedness for new school construction. This provided strong support for innovation in academic programs. However, the district experienced somewhat uncertain support for its proposed improvements in vocational education programs, an equally critical educational improvement needed in that community. General interest in education grew in this community as the result of housing changes.

> One district characterized itself as a small town with a conservative, moderately well-educated, successful core population with strong rural roots. The town contained a small private four-year college and a small private two-year college, an institution serving the region's mental health needs, some light manufacturing, and small-town commercial activity. One resident reported that education rivaled travel, national politics, and local politics as a topic of conversation in informal neighborly weekend private parties. The parent-teachers association was no more active than in other districts. The district itself was actively innovating in team teaching and professional staff development programs.

> One school district was located in a community with a state univeristy and a private four-year college in, or within a few miles of, the district. College-school district interchange was active through use of student teachers and teacher-faculty interation in planning innovations. University personnel were parents to some of the school district's students. Sometimes university personnel served on the school board. The school district itself was actively innovating in team teaching programs and in professional staff development programs.

A general community attitude which values education indeed may help sustain educational innovation adoption, but it is not available through majority support in every school district. There are other sustaining mechanisms which are also effective, probably equally effective. Innovation adoptions can be sustained by an active and continuing interest on the part of members of the board of education in matters of educational program and in innovation adoption. Board members sometimes protest that education today is a complex business and that they are not experts. However true this may be, active interest from members of the board of education in changes which are adopted, in results of changes, in the opporutnities for improved educational service, and in student and parent responses to change, can provide an important sustaining influence which encourages innovation adoption.

> One highly innovative school district had a newsletter about board activities which was published immediately after each board meeting. It described the reactions of the board to various items in its agenda including important coverage of its reactions to progress with innovation adoptions. It credited individuals in both leading and supporting roles for their contributions to the work. The newsletter was distributed to the professional personnel in the school district and was available to parents and interested citizens and the public press.

A board interest which creates the effect of a committee of investigation risks retarding innovation adoption. A board which understands that its interest and attention can act as an important reward is likely to distribute its time among its many duties so that innovation adoption is encouraged.

The interest of the superintendent and principals in changes in educational practice can act as an important sustaining influence on innovation adoption. Their interest in the outcomes of new practices, their willingness to have teaching staff try new activities, and their general public attention to new activities in their school and district is likely to encourage innovation adoption.

> A teacher admired the changes in elementary instruction which were occurring in another elementary school in her town. "Why not go ahead and do the same thing in your school?" we asked. "The principal is not ready for it," was the answer.
>
> One superintendent published a district newsletter now and then carrying news of general interest to the professional staff and highlighting in nearly every issue some changes which were occurring in the educational programs of the district.
>
> One innovative school district had a superintendent with a rose bowl in his office containing slips of paper with a staff member's name on each slip. Monthly the names were tumbled and ten or so drawn from the bowl. Those staff members were invited to coffee for an informal hour in the superintendent's office to talk about anything.
>
> One innovative school district decided to have the staff in each school in the district examine a "problem" together. Some schools made innovation adoptions of significant proportions about a year later as the direct result of this "organizing to look at a problem" stimulated by superintendent and principals.

An increasing financial support for public education can act as a sustaining mechanism, providing additional help or new materials or new facilities, which encourage change. It is likely that important innovations can be made without increased financial support; in effect, increased financial support is not an essential ingredient for some changes in education practice, although it is likely that complex and extensive changes require extra financial effort. Innovation adoptions surely occur with greater certainty if a specific budget is allocated to encouraging consideration of unmet needs and ways to meet them. This will help focus effort on (1) identifying unmet needs and their importance, then (2) introducing changes in practice to meet the needs.

> Progressively larger budgets for a school system allocated exclusively to staff salary increases may have little effect upon innovation adoption. A portion of the budget increases set aside to encourage innovation adoption could have high leverage in sustaining adoptions.
>
> One innovative school district set aside $10,000 in its annual budget to fund projects which

> teachers proposed. The presence of the fund was announced to the staff, as were the project grants made from the fund.

Talk about education in the school district seems to be an important sustaining mechanism, or at least the communication channel by which the presence of sustaining interest in and value for education is expressed. These channels also carry performance feedback information. Without the talk-network there seems to be little opportunity for imported ideas, knowledge of unmet needs, and knowledge of success with newly adopted innovations to be shared. We believe the presence of a communication network acts as a sustaining mechanism and that it carries attitudinal information which also can act as a sustaining force.

> We observed little communication between teachers who work in different schools in the same district. We view this as an important unused opportunity to establish a sustaining force for supporting innovation adoption and the spread of innovations within a school district.

> Some districts had school newsletters for parents and/or good press relations with significant coverage in the local news media. We view this as an important supplement to the informal communication net among educators and the informal communication between educators and the community. It probably cannot substitute for the informal communication nets.

Overcoming barriers to innovation adoption

There appear to be many options for stimulating innovation adoptions in a local school district. The basic strategy is to identify the sustaining mechanisms most easily developed and bring them into juxtaposition with the people in the district who are importing ideas. Some combinations may be more effective than others, but a very large number of options probably are workable.

> A school board whose attention is distracted by site selection and building requirements may be supplemented by a group of interested citizens and teachers whose attention to proposed innovations in educational programs is sufficient to get the proposals reviewed and adopted as appropriate. (Substitute one sustaining mechanism for another.)

> A professional staff which seems not to participate actively in professional organizations may become interested in visits from carefully selected

outsiders who discuss recent developments or may be stimulated by relevant articles about new innovations which are circulated to them. (Substitute one initiating mechanism for another.)

A teacher whose enthusiasm for a new educational practice is modest may be influenced to reconsider by participating with others in the presentation of the "pro" and "con" arguments about the new practice to the school board, or to interested parents. (Increase both initiating and sustaining forces.)

If ideas imported through the reading of professional literature and supported with school board interest in reports about the innovations are not producing changes in practice, then teacher and parent visits to other schools which are discussed over coffee with non-traveling teachers and parents may produce innovation adoptions. (Substitute one combination of initiating and sustaining mechanisms for another combination.)

A principal whose lack of interest in changes in his school is sufficient to dampen enthusiasm may be moved toward change by the attention given to educational innovations in another school in the district and, at the same time, by providing frequent informal opportunities for him to talk to the superintendent or to members of the school board. (Increase initiating and sustaining forces.)

A superintendent who realizes that his own pleasure and patience in focusing school board or public interest on necessary innovations is less than he would like it to be may identify among his principals and teachers and staff several people who are interested and skillful in doing this work. The superintendent can give them his interest and attention as they prepare for the work, arrange to reduce some of their other responsibilities, and make it possible for many people to see the mutually supportive roles which he and they have in the task. (Interest from the superintendent in innovations, a sustaining force, is used to change the roles of other staff members who, in turn, develop general interest in and support for an innovation.)

The absence of sustaining mechanisms is likely to be the most frequently experienced barriers to innovation adoption. The interchangeability of one sustaining mechanism for another, as suggested by our model, offers the route around the barrier.

This interchangeability -- of one initiating mechanism for another, and of one sustaining mechanism for antoher -- offers at the same time both a large number of combinations which are likely to produce innovation adoptions and no step-by-step formula for getting adoptions. We suggest that the opinions which say...

> "We cannot change things here till we get a new superintendent..."
>
> "It takes new money to change, and we cannot get it. Therefore, we cannot change."
>
> "We cannot adopt team teaching until we build a new building."

...are opinions which do not get strong support from our observations and do not get support from our model. They may be better described as partly-true excuses than as generalizable scientific statements describing innovation adoption processes in local school districts.

Achieving performance improvement

> The purpose of innovation adoption is to achieve some incremental educational benefit for students or a benefit in reduced effort for the professional staff or the community. The innovation adoption - performance feedback cycle is a primary means for improving the overall educational performance of the school district and requires knowledge of the effects of an innovation.

Knowledge of the effects of an innovation adoption is likely to be one of the most influential forces on its spread through the school district. Knowledge of effects needs to be shared knowledge, sometimes shared only with those principally involved in the innovation and with the school board and sometimes widely shared with the professional staff, students, parents, and the community. We believe that shared knowledge of results of innovations coupled with a climate which supports a high rate of innovation adoption in the local school district is a primary route to the improvement of public education.

Knowledge of the effects of an innovation can come from a wide variety of processes.

A teacher may observe whether the students approve the innovation adoption.

Teachers and principals from several schools in the district may discuss the effects of an innovation to bring together their independent observations of its effects and share this knowledge with each other.

Comments by parents may be observed and collated by the professional staff.

A consultant may be invited to review the school district's activities, perhaps even before and after the innovation adoption, to offer his observations about the effects of the innovations.

Standardized testing programs may provide data which indicate some of the effects of an innovation.

Visits to several institutions of higher education to which graduates go in order to interview instructors there for insights into specific strengths and weaknesses of the students can produce important information about the effects of innovation adoptions in the terminal years of the local school district's educational program.

Statistical information, such as number of dropouts or number of delinquency incidents among school age population or number of graduates continuing to higher education may be used in some places as very general indices of school performance. Usually the data base is weak, and there are seldom appropriate adjustments to aid interpretation. These offer promise of usefulness for some purposes, but are of very limited present usefulness.

Attendance rates may provide some information about the effects of an innovation.

Parent reports systematically assembled from parent-teacher conferences may provide some insight into the effects of an innovation.

Some processes for understanding effects of an innovation may be more useful and more persuasive than others. Failure to secure and use information about the effects of an innovation risks the continuation of innovations which bring no benefit, or the limited utilization of innovations which bring significant benefits.

GUIDELINES FOR INSTITUTIONS OUTSIDE THE LOCAL SCHOOL DISTRICT

The relative influence of mechanisms affecting performance

Initiating, sustaining, and feedback mechanisms affect the overall performance of the school district, according to our generalized model, and we judge the sustaining and feedback mechanisms to have the most influence upon the innovation adoption - performance feedback cycle which affects the improvement of the educational system.

The role of the outsider

Sustaining mechanisms are functions of the characteristics and attitudes of the people of the local school district. The role of the institution or person outside the local school district in influencing these sustaining mechanisms seems to be quite limited.

> Changes in financial support can be offered by state and federal governments. Monies specifically allocated to innovation adoption in the local school district can be particularly effective in encouraging adoptions. Many educators feel that the federal ESEA Title III monies will be most important to the support of educational improvement since they provide 100% grants to encourage innovation.
>
> Local school districts are sometimes helped in significant ways by an effective "federal projects coordinator" who assists the district in identifying its needs and then helps the district develop a response to the needs and a proposal for special funding. Some state departments of education assist districts in this process, but their ability to help often falls short of the need for help. Districts most in need of a "federal projects coordinator" may be least likely to have one. Action to provide needy districts with skilled manpower of the kind and in the amount required to develop well conceived responses to needs and applications for funds would be most helpful.

> Institutes or workshops for superintendents and principals which focus upon the innovation adoption processes probably can increase interest in innovation among these key members of educational management. Their increased interest in innovation, and their knowledge of the process, probably can increase the innovation adoption rates in their districts. Financial support for such institutes, including travel expense support for the participants, can be offered by outside agencies.

While these opportunities exist for outside agencies to influence the sustaining mechanisms, the mechanisms seem to us to remain largely beyond the direct influence and manipulation of outstiders. Some will view this idea as one justification for the practice of having important control over local public education exercised by a locally elected board of education. Others will view the inaccessibility of sustaining mechanisms to the outsider as a significant barrier to improving education in the local district through influence from the outside. We believe that the sustaining mechanisms represent characteristics of the community which cannot be overlooked or bypassed in the adoption of educational innovations. The outsider can help, but his effectiveness will be related to his sensitivity to the community climate sustaining interest in education and educational outcomes.

Influence on the performance feedback mechanisms appears more feasible to the outside institution or agency than for the sustaining mechanisms.

> States may require by law that school districts participate in testing programs intended to identify specific needs in the state.

This may be more an apparent influence than a real influence on the feedback mechanisms. The outside agency has little control over the local district's use of the information about performance.

Initiating mechanisms are accessible to the outsider, but we estimate these mechanisms to be working well enough now to support innovation adoption rates in the local school districts which are much higher than presently experienced.

Priorities for long-range progress

Our experience suggests some priorities for programs of agencies outside the local school district whose purpose is to aid the long-range development and improvement of the first dozen years of public education. These agencies include state departments of education, agencies of the federal government, educational research laboratories doing both public and private developmental work, universities, organizations and associations of local school districts in an area or region to perform functions which districts cannot do for themselves, consulting organizations, publishers, and yet other agencies outside the local school district.

We conclude that one of the most important activities which federal and state agencies can support in behalf of the local school districts is the design and development of performance measures and information systems for local school districts and the development of the organizations and technology necessary to support their use in the local school districts. We feel that the feedback mechanisms are that portion of the innovation adoption process which is both accessible to influence from outside agencies and also has a high leverage in accelerating the rate of improvement in educational practice.

Measures of school district performance are not high on an educator's list of needs. Standardized achievement testing programs and job performance review programs to name two examples, have mixed reputations. An important segment of educators view these technologies as at least as much a source of potential embarrassment as they are a source of help. This uncertain reputation emphasizes the need to change the character and conditions for use of the performance measures.

Performance measures and associated technologies need to have characteristics which are only partially available in current practice. (1) They need to be relatively easy for the local school district to use. If the measurement procedures require highly trained talent for their administration, or require extensive amounts of time from local district staff and students and residents, the measures will not be used. If the measures are interesting, obviously seek important data and approach relevant issues, and have that delicate balance between securing enough information to be reliable and yet asking less effort than what will be judged to be burdensome by those providing the information, then the measures may be used.

(2) The measures need to be administered in a way which involves the local school district in interpreting and understanding the results without embarrassment to the district and without unnecessary embarrassment to people within the district. Some of the purpose of measurement is to discover opportunities for improved performance, and sometimes that objective is accomplished by comparing performance of one district with the performance of another district. It is essential that this be accomplished so that the people in the local school district can become involved in interpreting the findings with appropriate protections for individuals, the local district, and other districts who may be participating directly or indirectly for comparative purposes. Our model stresses the importance of feedback of performance information to the people in the local school district. It is not known what kinds of information should be distributed, to whom it should go, and how it should be presented. For example, the effects of time-honored student grade reporting to parents are imperfectly

understood. Lacking information about educational performance, the parent, the students, the individual teacher, the teachers in a department or a school, the school board, and the community find it difficult to know how they wish to modify what they are doing in order to achieve changes in performance which they desire.

(3) Measures must provide a wealth of information, implying a sophistication in measurement which we believe can be achieved by existing technology but which is not found in current practice. While the measures must be easy to use, an increasingly sophisticated community will demand information which approaches completeness. To know only how students are reading is not a sufficient measure in a community which is experiencing deep concern about crime by young adults. To know only how many high school graduates go on to four-year universities is not sufficient in a community where students drop out of school and where unemployment rates among young adults are high at the same time that developed occupational skills of many varieties are difficult to find in the labor market. Knowing that half of the students in the school placed in the upper ten percent of all students in the state in health and physical fitness will not be sufficient when many parents find their youngsters declaring that they do not like to be in school. In effect, the variety of information available to the school district about its own performance will need to be large and relevant. It is likely that sophisticated technologies must link the easy-to-use procedures for data gathering and the easy-to-understand but relevant and important reports about human growth and development which become available to the school district from its data gathering activities.

The development cost for the technologies necessary to provide local school districts with knowledge of their performance will not be raised by the local districts, and the initial assembly of personnel and information processing capabilities necessary to support the routine use of such measurements will not be undertaken by local districts. Federal programs which support developments of these kinds, and state departments of education or other large-region clusterings which can manage the research activities and organize the services, are the agencies which are most likely to be able to aid in this effort.

A second activity of high priority is the further examination of the innovation adoption process. We assume, with important support for the literature in organization change, management science, and human learning theory, that the innovation adoption - performance feedback cycle is near the heart of the process by which school districts improve their performance over time. There is a volume of literature on innovation in education. Nevertheless, the innovation adoption process is still not well understood. While our model suggests that initiating and sustaining mechanisms are critical to innovation adoption, and that feedback mechanisms are critical to changes in overall educational performance of the school district through the innovation adoption - performance feedback cycle, strong support for this model is not in hand. While we can conclude from our experience that the development of performance measures for local school districts, properly done, can stimulate improvements in educational practice, but there is no extensive accumulation of scientific evidence about the innovation adoption processes in the local school district which supports that recommendation. Thus, continued activities focused upon understanding the innovation adoption process seem to us to be of very high priority.

Our model of the innovation adoption process calls attention to the importance of the sustaining mechanisms in the innovation adoption - performance feedback cycle. They are characterized by management interest in, but not necessarily direction of, innovation and other such broadly supportive features. By contrast, the role of some state law regulating education, and the role of state departments of education in administrative support of the law, historically has been the inspection and regulation of education, particularly to assure that minimum requirements are met. If our model is right, the historic role of state departments of education may need important revision if these institutions are to aid the improvement of education in the adoption - feedback cycle. Outside agencies which offer sustaining services to the local school district in its functions are likely to have an important beneficial effect uppon the innovation adoption rate, or so we would conclude from our model. This is one illustration of the importance of additional knowledge about innovation adoption and performance change.

Innovations in education in this decade and the decades ahead probably will require large investments for their development and initial evaluation. We view this as an essential and high priority function to be supported and managed outside the local school district. The development of new curriculum materials, the development of computer assisted instruction, the invention of new patterns for student grouping and new patterns for teacher cooperation, the planning of school facilities and sites for their appropriate use in support of educational programs and community programs, and other research and development activities will occur in the laboratories of publishers and computer manufacturers, in architects offices, in consulting organizations, in educational research laboratories, and in universities. We view the federal, state and private support of these activites as essential to the development of innovations. While the school districts can participate in this process, they cannot finance it and cannot lead it.

The fourth area which is legitimately the subject of attention for individuals and institutions outside the local school district relates to the initiating mechanisms by which the local school district discovers the existence of an innovation which it may wish to consider for its own educational program. Publishers representatives, members of the faculty of the local university, and members of the staff of the state department of education are the traditional "outsiders" who are available to the local school district. Representatives from regional educational laboratories and consultants in education are newcomers to the ranks of the "outsiders" available to school districts. Professional meetings for school administrators, for teachers, and for school board members are traditional activities supporting the flow of information about innovations to people in the local district. We have the impression that these mechanisms, along with the professional literature, do carry information about innovations to the school districts. The difficulties, from the school district point of view, are in indentifying the district's problems, assigning priorities to the problems, screening the multitude of ideas for those innovations which are best suited to the district's problems, and mobilizing the commitment and effort necessary to adopt an innovation. While editors of professional journals could insist more often on publishing information indicating what effects an innovation has, while, categorical aid for travel expenses for school professional staff in support of visits and for the employment of consultants could be used, while publishers and salesmen to education probably could upgrade and change the quality and methods of their presentations particularly in the direction of providing demonstrations and information about the effects their materials and programs can be expected to produce, it still seems that innovative ideas do get transmitted to educators and that this part of the innovation adoption process works well enough to support a higher rate of innovation adoption than is now being experienced. While the approach a particular outside institution used to communicate its innovation to educators and school districts may be critically important in determining its "share of the market," and therefore be important to that particular institution, it is likely that the sharing of information about the features of new innovations probably is adequate. We conclude the initiating mechanisms are least in need of special attention at this time.

Looking only at the role of institutions and agencies outside the local school district in supporting innovation adoption and the improvement of education, we conclude that top priority should be given by them to:

- the development of technologies and supporting organizations to permit local school districts to assess their own performance and the effects of innovation adoptions.

- the further investigation of the processes of innovation adoption and its relationship to the improvement of educational practice.

- the design, development, and evaluation of innovations.

We conclude that:

- the means of disseminating information about innovations to the school districts, while they could be improved, seem to operate well enough to support innovation adoption rates above those actually being experienced now and therefore require no incremental new attention at this time.

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APPENDIX A

LIST OF PARTICIPATING DISTRICTS

The Arthur D. Little, Inc., study team visited eight school districts and talked with the Superintendent, the Chairman of the Board of Education, and with 18 to 20 other residents who were mostly professional educators but also included on occasion school board members, parents and citizens. The districts which participated in the study are listed here. Their cooperation was splendid and is genuinely appreciated by the study team.

San Ramon Valley Unified School District
Danville, California
    Richard L. Foster, Superintendent
    Edward Thomas, Chairman, Board of Education

Litchfield Community Unit Schools
Litchfield, Illinois
    Harold L. Reents, Superintendent
    William Vasel, Chairman, Board of Education

Winfield Public Schools
Winfield, Kansas
    James M. Benjamin, Superintendent
    John Reynolds, Chairman, Board of Education

Northampton Public Schools
Northampton, Massachusetts
    John M. Buteau, Superintendent
    Edwin C. Warner, Vice-Chairman, Board of Education

Honeoye Falls Central School District
Honeoye Falls, New York
    William D. Ealahan, District Principal
    John Proper, President, Board of Education

Richland School District No. 2
Columbia, South Carolina
    Cyril O. Havird, Superintendent
    L. W. Conder, Sr., Chairman, Board of Education

Humboldt City Schools
Humboldt, Tennessee
    William Sadler, Superintendent
    Harold McLeary, Chairman, Board of Education

School District No. 1
Lincoln County
Kemmerer, Wyoming
    Robert G. Naylor, Superintendent
    Walter E. Dybowski, Chairman, Board of Education

APPENDIX B

STUDY METHODOLOGY AND FINDINGS

This appendix describes the sequence of activities undertaken during the course of this study, the methods by which data from interviews and questionnaires were treated, and some of the statistical findings which supplement the findings presented in Chapter IV.

STUDY ACTIVITIES

Literature search

Search of the published literature was done for two purposes: (1) It was necessary to review and synthesize in a form which directed the conduct of this study the prior studies on innovation adoption in education; (2) it was necessary to identify two types of adoptions which represent relatively new educational innovations and yet have been adopted in a sufficient number of locations to guarantee that we could find relatively typical school districts which had recently made at least one of the two types of adoptions being studied.

The product of the literature search for available knowledge about innovation adoption is represented in the short bibliography for this report and in the paper prepared by Kenneth J. Gergen with its extensive bibliography which is reproduced as Appendix F. The search of the literature to review recent innovations appropriate for our study resulted in the selection of innovations in "team teaching" and innovations in "professional staff development" for review. Several articles describing team teaching and describing a broad range of activities in professional staff development were read by all members of the study team as a part of their preparation for interviews in the school districts.

Questionnaire construction

The questionnaires were prepared for this study by Paul F. Ross, Charles C. Halbower, and Kenneth J. Gergen. While Gergen's paper (see Appendix F) was complete at the time of questionnaire construction, our model for the innovation adoption process had not been developed. Item writing was guided by the authors' understanding that the channels by which information about educational innovations entered school district may be critically important.

Item writing also was guided by the authors' interest in communication nets. We introduced a variety of items which considered the effects the innovation had upon practices and performance in the school district. We also directed attention to the roles of non educators in the processes of innovation adoption, particularly the roles of school board members and the roles of parents and other members of the community. We introduced items in the questionnaires which assessed the roles of various actors in the implementation steps of an innovation adoption. We introduced the method of nominating specific individuals who fit specified roles and then ranking these roles and the individuals nominated for the roles under several sets of instructions. See the questionnaires in Appendix G.

Selection of districts

The selection of districts is described in Chapter I. States were selected in order to get broad regional representation in the United States. Districts were selected within each state so they fell within the middle two quartiles of all school districts in their own state with respect to per pupil expenditures and enrollment. Districts also were selected only if they had completed an adoption of new practices in their school districts in the recent past in either team teaching or in professional staff development. Thus the districts visited probably are among the more innovative districts in their state, particularly with respect to team teaching and professional staff development programs.

Selection of interviewees

Two members of the study team first interviewed the superintendent as they began their visit in a school district. The superintendent described the characteristics of the school district and then listed recent changes in educational practice which qualified as team teaching or as professional staff development programs. The superintendent named people, at our request, who were supporters of the innovations and who were skeptics about the innovations. Study team members then interviewed the chairman of the school board and two other persons in the school district, usually educators, who also suggested names of persons to interview. Study team members compiled a list of persons they wished to see from the nominations made by the four nominators. Interviews were scheduled, with the help of the superintendent's office, with eighteen or more interviewees. The study team selected the interviewees so that an equal number of people were interviewed about each type of innovation. There were about nine interviews for team teaching and an equal number for professional staff development innovations. The two visitors comprising the study team for that visit divided the team teaching and professional staff development interviews equally between them.

Interviews

The interviewee was told about the purpose of this study and was told that the information he supplied would be treated in a way to protect his anonymity. He was also told that his school district would be named in the final report, but that the detailed data would be presented in the report so that his own district could not be identified by persons outside the district.

The interviewer usually referred to the particular innovation with which the interviewee was known to be familiar, and then encouraged the interviewee to describe that innovation and any other innovations which could be classified as changes in practice with respect to the particular type of innovation for which the interviewee had been selected. Each interview considered only one class of innovation, either team teaching or professional staff development, and not both. Usually the interview focused upon a particular innovation. With some guidance from the interviewer, the interviewee described when the innovation had been adopted, who had been involved in introducing the innovation, who was participating in the innovation, the effect of the changes, how the effects of the changes were known, how particular problems had been solved, what students and parents thought, and a variety of other topics. This method of finding a particular innovation with which the interviewee had been involved and getting a description of the events surrounding that innovation has much in common with the method of "critical incidents" developed by John C. Flanagan.

At the close of the interview, usually lasting from one to two hours, the interviewer gave two questionnaires to the interviewee, asking that the questionnaires be mailed directly to the interviewer. The resident was given Questionnaire 5 or 6, depending upon whether the interview topic had been team teaching or professional staff development, and Questionnaire 4. Altogether 149 people were interviewed and given questionnaires, and 142 questionnaires were returned completed, a response rate of 95 percent.

After the completion of the interview, and usually after the completion of the visit, the interviewer reviewed his notes for each interview and completed a Questionnaire 7 for each interview. Then the interviewer considered the entire school district and its innovations in team teaching and professional staff development and completed Questionnaires 8 and 9.

Model Construction

The experience of listening to descriptions of educational innovations in the school district persuaded the authors that the prototypical models for the innovation adoption process were appropriate for some adoptions, but that none of them was sufficiently general to apply to most if not all of the adoptions we had observed. This finding is discussed in Chapter II. A model which described the innovation adoptions we observed necessarily was more general than any of the prototypical models.

Paul F. Ross proposed the major features of our model in a memorandum prepared in December, 1967 after seven of the eight visits to districts had been completed. Ross also proposed that the choice of the "adopting unit" for consideration in this study be resolved in favor of the school district rather than considering, for this study, the individual educator as the adopting unit.

DATA ANALYSIS

Interview data analysis

Visitors to the school districts reviewed their notes and prepared memoranda describing the innovation adoptions which had been described to them and discussing the characteristics of the school district and the dynamics which they felt were operating in the innovation adoptions. These memoranda are available only to study team members and are not available to the districts visited or to any other party.

Classification of questionnaire items

Ross and Gergen classified each of the questionnaire items into I, S, F, P, and O(for "other") categories following Ross's model. While some items could legitimately be classified in two or more categories, a phenomenon familiar in educational and psychological measurement where questions with unambiguous and unidimensional meaning are known to be difficult to construct, there was a high degree of agreement between the classifications of questions made by the two investigators. The distinction between measures of innovation adoption performance "p" and overall educational performance "P" was not made until later in the analysis. Items within the broad classifications were subdivided in order to produce eight measures of initiating mechanisms, eight measures of sustaining mechanisms, three measures of feedback mechanisms, six measures of innovation adoption performance, and one measure of overall educational performance. The items to be included in these measures of the mechanisms were assembled by investigator judgments, following the constructs in the model, without reference to questionnaire responses or item statistics. Other measures were developed from the communication nets by similar methods.

Developing "measures" from questionnaire responses

Measures of district characterists were developed from responses to the questionnaires by both visitors and residents. A school district characteristic, in most instances, represents the combined responses of two visitors or the combined responses of nine residents interviewed about either team teaching or about professional staff development. In some measures the district characteristic represents the combined reports of eighteen residents interviewed about both team teaching and professional staff development. In some instances the measure of a district characteristic is the responses combined from particular types of residents, such as all the teachers who completed questionnaires.

Measures were produced first by combining the answers to one or more questions given by an individual observer (either visitor or resident), then by combining the reports of several observers into a single measure of the district characteristic. The combinations were made by computer, after translating all questionnaire responses into machine-readable form.

The observations of a single observer, as recorded in answers to several questions, were combined by (1) determining whether the observer's answer was above or below the median response to the question by all participants in the study who answered the question, (2) counting the number of occasions in which the observer's responses was above the median for all responses, (3) supplying an answer for the observer in those few instances in which he failed to answer the question by indicating his answer was either above or below the median through the use of a random (the equivalent of flipping a coin) procedure, and (4) dividing the total count of the number of his responses which were above the median by the number of questions being combined into his report. This provided a "score" from each observer which ranged between .00 and .99 with a mean score for all observers which was near .50 depending upon our ability to divide answers to all items at or very near the median.

Measures of district characteristics were developed by combining the "score" from each observer into a single total and dividing the total by the number of observers. These methods for developing a measure of a district characteristic applied to all measures except those which were developed from the communication net. Those measures are described in greater detail in Appendix E.

STATISTICAL FINDINGS

Estimates of the reliability of several measures

Estimates of the reliability of the performance (p,P) measures were made and are reported in Table 18. The reliabilities reported are inter-rater reliabilities and inter-group reliabilities. The inter-rater correlation coefficients describe how the responses made by Visitor A agree with the responses made by Visitor B. The inter-group reliabilities describe how the responses made by one group of four or five residents (Group A) agree with the responses made by four or five other residents (Group B). A number of the characteristics were measures by a single questionnaire item, and the reliabilities reported in Table 18 therefore are "item" reliabilities in several instances. The careful reader will notice that the correlation between initiating and sustaining mechanisms (I x S) and innovation adoption performance (p) as reported in Figure 10 is higher than most of the reliabilities reported in Table 18. This is possible because the measures of innovation adoption performance (p) used for preparing the data reported in Figure 10 are a combination of nine of the measures whose reliabilities are reported in Table 18. The combined measures of adoption performance (p) are more reliable and probably also more complex in their dimensionality than any one of the measures whose reliabilities are reported in Table 18.

Intercorrelations of I, S, F, p, and P

The intercorrelations of the measures of district characteristics as presented in Tables 6, 7, 10, and 15 are shown in Table 19 for professional staff development and Table 20 for team teaching. The correlations shown are rank order correlation coefficients (Rho). The correlation matrices are divided into sections for initiating mechanisms, sustaining mechanisms, innovation adoption performance, feedback mechanisms, and overall performance in that order beginning from the top left corner of the matrix. Labels for the columns and rows of the matrices correspond to labels used in Tables 3, 4, 9, and 14.

TABLE 18

RELIABILITY ESTIMATES FOR SEVERAL MEASURES

showing reliabilities as Pearson product-moment correlation coefficients

N = 8

Code for Measure[a]	Name of Measure	Type of Measure	Number of Questions Included In Measure	Number of Times Question Was Answered	Information Recorded by	Inter-rater Reliability[b]	Inter-group Reliability[c]
WW	Extent	p	1	1	2 Visitors	.88 PSD .88 TT	
WV	Extent	p	1	9+	2 Visitors	.13 PSD .82 TT	
VV	Best Educational Practice	p	1	9+	2 Visitors	.51 PSD .22 TT	
VW	Best Educational Practice	p	1	1	2 Visitors	.38 PSD .80 TT	
TV	Rate of Spread	p	1	9+	2 Visitors	.38 PSD .46 TT	
TW	Rate of Spread	p	1	1	2 Visitors	.47 PSD .67 TT	
UR	Aids School Objectives	p	1	1	9+ Residents		.14 PSD .69 TT
PV	Professional Staff Enthusiasm	p	3	1	2 Visitors	.66 PSD .17 TT	
YR	Personal Committment	p	4	1	9+ Residents		-.36 PSD .50 TT
XR	Self Esteem in Educational Role	P	10	1	9+ Residents		.28 PSD .21 TT

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[a] Reliabilities were estimated for the coded measures shown here. Two measures were combined, in some instances, for use in the study and for reporting in Table 9 and 10.

[b] Inter-rater reliability reports the correlation between responses made by visitors A and B about team teaching (TT) and professional staff development (PSD) programs.

[c] Inter-group reliability reports the correlation between the mean "score" from residents in "group A" with the mean "score" from residents in "group B." Residents were assigned in either group A or B by a random process. They reported their observations about team teaching (TT) and professional staff development (PSD) programs.

TABLE 19

INTERCORRELATIONS OF VARIABLES DESCRIBING PROFESSIONAL STAFF DEVELOPMENT

N = 8

	AR	BR	CR	DR	ER	FV	A*	D*	JV	KV	LV	MR	B*
AR	1.00	0.65	0.37	0.64	0.90	0.19	0.49	-0.27	-0.50	0.08	-0.22	0.07	0.41
BR	0.65	1.00	0.27	-0.01	0.78	-0.07	0.05	-0.59	0.06	0.36	-0.02	0.10	0.31
CR	0.37	0.27	1.00	0.63	0.41	0.60	0.17	-0.37	-0.23	-0.18	-0.54	0.53	-0.02
DR	0.64	-0.01	0.63	1.00	0.39	0.43	0.56	-0.04	-0.81	-0.40	-0.53	0.14	0.02
ER	0.90	0.78	0.41	0.39	1.00	0.12	0.40	-0.46	-0.15	0.20	-0.22	0.14	0.42
FV	0.19	-0.07	0.60	0.43	0.12	1.00	-0.38	0.09	0.04	0.24	0.24	0.35	0.29
A*	0.49	0.05	0.17	0.56	0.40	-0.38	1.00	-0.07	-0.67	-0.68	-0.79	0.14	-0.31
D*	-0.27	-0.59	-0.37	-0.04	-0.46	0.09	-0.07	1.00	-0.22	0.13	0.21	0.29	0.25
JV	-0.50	0.06	-0.23	-0.81	-0.15	0.04	-0.67	-0.22	1.00	0.46	0.54	-0.03	0.04
KV	0.08	0.36	-0.18	-0.40	0.20	0.24	-0.68	0.13	0.46	1.00	0.67	-0.07	0.87
LV	-0.22	-0.02	-0.54	-0.53	-0.22	0.24	-0.79	0.21	0.54	0.67	1.00	-0.34	0.38
MR	0.07	0.10	0.53	0.14	0.14	0.35	0.14	0.29	-0.03	-0.07	-0.34	1.00	-0.02
B*	0.41	0.31	-0.02	0.02	0.42	0.29	-0.31	0.25	0.04	0.87	0.38	-0.02	1.00
C*	0.74	0.16	0.55	0.37	0.52	0.35	0.63	0.19	-0.78	-0.25	-0.51	0.48	0.18
E*	0.37	0.18	-0.04	0.13	0.23	0.57	-0.44	0.40	-0.05	0.75	0.62	0.02	0.83
H*	0.37	0.20	-0.41	0.11	0.25	-0.38	0.14	-0.25	-0.28	0.16	0.16	-0.86	0.30
W	0.25	-0.30	0.20	0.45	0.10	0.57	-0.04	0.64	-0.33	0.36	0.07	0.25	0.67
V	0.48	0.28	0.19	0.30	0.36	0.70	-0.44	-0.04	-0.03	0.60	0.56	-0.19	0.66
T	0.54	0.01	0.15	0.56	0.31	0.40	0.09	0.48	-0.55	0.39	0.04	0.07	0.77
UR	-0.15	0.51	0.14	-0.33	0.01	-0.18	-0.32	-0.79	0.37	0.01	0.04	-0.25	-0.33
PV	-0.01	0.27	0.16	-0.14	0.21	-0.14	-0.21	-0.56	0.29	0.35	-0.10	-0.43	0.31
YR	0.62	0.10	0.09	0.73	0.28	-0.11	0.68	0.19	-0.96	-0.38	-0.40	-0.01	0.01
R	0.36	0.02	0.12	0.23	0.31	0.77	-0.38	0.12	0.15	0.53	0.59	-0.07	0.60
F*	0.07	0.06	-0.40	-0.16	0.05	0.05	-0.34	-0.37	0.28	0.20	0.63	-0.81	0.06
G*	0.38	0.44	-0.11	0.20	0.19	-0.42	0.19	-0.20	-0.55	0.06	-0.15	-0.43	0.18
XR	0.39	0.49	-0.08	0.10	0.18	0.07	-0.28	0.06	-0.32	0.51	0.35	-0.19	0.53

TABLE 19 (Continued)

C*	E*	H*	W	V	T	UR	PV	YR	R	F*	G*	XR
0.74	0.37	0.37	0.25	0.48	0.54	-0.15	-0.01	0.62	0.36	0.07	0.38	0.39
0.16	0.18	0.20	-0.30	0.28	0.01	0.51	0.27	0.10	0.02	0.06	0.44	0.49
0.55	-0.04	-0.41	0.20	0.19	0.16	0.14	0.16	0.09	0.12	-0.40	-0.11	-0.08
0.87	0.13	0.11	0.45	0.30	0.56	-0.33	-0.14	0.73	0.23	-0.16	0.20	0.10
0.52	0.23	0.25	0.10	0.36	0.31	0.01	0.21	0.28	0.31	0.05	0.19	0.18
0.35	0.57	-0.38	0.57	0.70	0.40	-0.18	-0.14	-0.11	0.77	0.05	-0.42	0.07
0.63	-0.44	0.14	-0.04	-0.44	0.09	-0.32	-0.21	0.63	-0.38	-0.34	0.19	-0.28
0.19	0.40	-0.25	0.64	-0.04	0.48	-0.79	-0.56	0.19	0.12	-0.37	-0.20	0.06
-0.78	-0.05	-0.28	-0.33	-0.03	-0.55	0.37	0.29	-0.96	0.15	0.28	-0.55	-0.32
-0.25	0.75	0.16	0.36	0.60	0.39	0.01	0.35	-0.38	0.53	0.20	0.06	0.51
-0.51	0.62	0.16	0.07	0.56	0.04	0.04	-0.10	-0.40	0.59	0.63	-0.15	0.35
0.48	0.02	-0.86	0.25	-0.19	0.07	-0.25	-0.43	-0.01	-0.07	-0.81	-0.43	-0.19
0.18	0.83	0.30	0.67	0.66	0.77	-0.33	0.31	0.01	0.60	0.06	0.18	0.53
1.00	0.26	-0.08	0.54	0.21	0.65	-0.51	-0.37	0.77	0.19	-0.43	0.14	0.16
0.26	1.00	0.16	0.69	0.86	0.76	-0.36	-0.12	0.13	0.79	0.21	0.09	0.65
-0.03	0.16	1.00	-0.05	0.30	0.27	0.08	0.42	0.36	0.11	0.63	0.68	0.43
0.54	0.69	-0.05	1.00	0.49	0.89	-0.79	-0.11	0.24	0.60	-0.24	-0.16	0.16
0.21	0.86	0.30	0.49	1.00	0.60	-0.06	0.09	0.08	0.88	0.50	0.12	0.58
0.65	0.76	0.27	0.89	0.60	1.00	-0.64	-0.04	0.53	0.53	-0.13	0.28	0.50
-0.51	-0.36	0.08	-0.79	-0.06	-0.64	1.00	0.44	-0.35	-0.34	0.28	0.31	0.18
-0.37	-0.12	0.42	-0.11	0.09	-0.04	0.44	1.00	-0.39	-0.05	0.20	0.26	0.03
0.77	0.13	0.36	0.24	0.08	0.53	-0.35	-0.39	1.00	-0.10	-0.16	0.60	0.41
0.19	0.79	0.11	0.60	0.88	0.53	-0.34	-0.05	-0.10	1.00	0.48	-0.31	0.18
-0.43	0.21	0.63	-0.24	0.50	-0.13	0.28	0.20	-0.16	0.48	1.00	0.10	0.16
0.14	0.09	0.68	-0.16	0.12	0.28	0.31	0.26	0.60	-0.31	0.10	1.00	0.76
0.16	0.65	0.43	0.16	0.58	0.50	0.18	0.03	0.41	0.18	0.16	0.76	1.00

TABLE 20

INTERCORRELATIONS OF VARIABLES DESCRIBING TEAM TEACHING

N = 8

	AR	BR	CR	DR	ER	FV	A*	D*	JV	KV	LV	MR	B*
AR	1.00	0.31	-0.59	-0.29	0.52	-0.05	0.24	0.09	0.43	0.04	-0.12	0.70	-0.19
BR	0.31	1.00	-0.04	-0.42	-0.23	0.63	-0.32	-0.58	0.63	0.32	0.12	0.19	0.31
CR	-0.59	-0.04	1.00	0.25	-0.18	-0.21	-0.01	0.13	-0.54	-0.17	-0.25	-0.39	0.54
DR	-0.29	-0.42	0.25	1.00	-0.46	0.21	-0.33	0.44	-0.23	0.24	0.31	-0.05	-0.14
ER	0.52	-0.23	-0.18	-0.46	1.00	-0.75	0.49	0.41	-0.09	-0.34	-0.20	0.44	0.22
FV	-0.05	0.63	-0.21	0.21	-0.75	1.00	-0.58	-0.58	0.55	0.45	0.47	-0.06	-0.10
A*	0.24	-0.32	-0.01	-0.33	0.49	-0.58	1.00	-0.07	-0.67	-0.93	-0.79	-0.33	-0.31
D*	0.09	-0.58	0.13	0.44	0.41	-0.58	-0.07	1.00	-0.22	0.21	0.21	0.35	0.25
JV	0.43	0.63	-0.54	-0.23	-0.09	0.55	-0.67	-0.22	1.00	0.77	0.54	0.68	0.04
KV	0.04	0.32	-0.17	0.24	-0.34	0.45	-0.93	0.21	0.77	1.00	0.69	0.55	0.19
LV	-0.12	0.12	-0.25	0.31	-0.20	0.47	-0.79	0.21	0.54	0.69	1.00	0.25	0.38
MR	0.70	0.19	-0.39	-0.05	0.44	-0.06	-0.33	0.35	0.68	0.55	0.25	1.00	0.03
B*	-0.19	0.31	0.54	-0.14	0.22	-0.10	-0.31	0.25	0.04	0.19	0.38	0.03	1.00
C*	0.0	-0.19	0.57	0.22	0.20	-0.36	0.63	0.19	-0.78	-0.69	-0.51	-0.37	0.18
E*	-0.29	0.09	0.49	0.39	-0.05	0.12	-0.44	0.40	-0.05	0.27	0.62	-0.05	0.83
H*	-0.54	-0.11	0.05	-0.40	0.01	-0.09	0.14	-0.25	-0.28	-0.32	0.16	-0.66	0.30
[illegible]	-0.20	0.62	0.17	-0.18	-0.48	0.43	-0.62	-0.17	0.45	0.63	0.34	-0.05	0.44
V	-0.22	0.76	0.18	-0.32	-0.29	0.55	-0.62	-0.43	0.55	0.47	0.49	0.01	0.63
I	-0.34	0.52	0.06	-0.02	-0.60	0.60	-0.72	-0.20	0.45	0.65	0.59	-0.17	0.41
UR	0.43	0.83	-0.14	-0.37	-0.05	0.56	0.06	-0.61	0.35	-0.11	0.02	0.02	0.19
PV	-0.05	0.30	0.19	0.44	-0.29	0.51	-0.31	0.08	0.03	0.16	0.56	-0.17	0.48
YR	-0.58	0.43	0.46	-0.38	-0.30	0.28	-0.13	-0.67	-0.03	-0.14	-0.02	-0.49	0.40
R	-0.01	0.54	0.25	0.31	-0.43	0.53	-0.60	0.14	0.31	0.58	0.52	0.06	0.54
F*	-0.25	0.21	-0.40	-0.06	-0.41	0.60	-0.34	-0.37	0.28	0.19	0.63	-0.37	0.06
G*	-0.80	-0.38	0.48	-0.11	-0.02	-0.28	0.19	-0.20	-0.53	-0.47	-0.15	-0.64	0.18
XR	0.35	-0.17	-0.53	0.32	0.28	0.13	-0.41	0.43	0.48	0.44	0.73	0.63	0.04

TABLE 20 (Continued)

C*	E*	H*	W	V	T	UR	PV	YR	R	F*	G*	XR
0.0	-0.29	-0.54	-0.20	-0.22	-0.34	0.43	-0.05	-0.58	-0.01	-0.25	-0.80	0.35
-0.19	0.09	-0.11	0.62	0.76	0.52	0.83	0.30	0.43	0.54	0.21	-0.38	-0.17
0.57	0.49	0.05	0.17	0.18	0.06	-0.14	0.19	0.46	0.25	-0.40	0.48	-0.53
0.22	0.39	-0.40	-0.18	-0.32	-0.02	-0.37	0.44	-0.38	0.31	-0.06	-0.11	0.32
0.20	-0.05	0.01	-0.48	-0.29	-0.60	-0.05	-0.29	-0.30	-0.43	-0.41	-0.02	0.28
-0.36	0.12	-0.09	0.43	0.55	0.60	0.56	0.51	0.28	0.53	0.60	-0.28	0.13
0.63	-0.44	0.14	-0.62	-0.62	-0.72	0.06	-0.31	-0.13	-0.60	-0.34	0.19	-0.41
0.19	0.40	-0.25	-0.17	-0.43	-0.20	-0.61	0.08	-0.67	0.14	-0.37	-0.20	0.43
-0.78	-0.05	-0.28	0.45	0.55	0.45	0.35	0.03	-0.03	0.31	0.28	-0.55	0.48
-0.69	0.27	-0.32	0.63	0.47	0.65	-0.11	0.16	-0.14	0.58	0.19	-0.47	0.44
-0.51	0.62	0.16	0.34	0.49	0.59	0.02	0.56	-0.02	0.52	0.63	-0.15	0.73
-0.37	-0.05	-0.66	-0.05	0.01	-0.17	0.02	-0.17	-0.49	0.06	-0.37	-0.64	0.63
0.18	0.83	0.30	0.44	0.63	0.41	0.19	0.48	0.40	0.54	0.06	0.18	0.04
1.00	0.26	-0.08	-0.40	-0.38	-0.48	0.14	0.32	-0.05	0.02	-0.43	0.14	-0.36
0.26	1.00	0.16	0.28	0.44	0.40	0.09	0.79	0.16	0.68	0.21	0.09	0.30
-0.08	0.16	1.00	0.17	0.31	0.32	-0.01	0.05	0.56	-0.15	0.63	0.68	-0.23
-0.40	0.28	0.17	1.00	0.74	0.93	0.19	0.23	0.36	0.72	0.36	-0.19	-0.26
-0.38	0.44	0.31	0.74	1.00	0.76	0.50	0.35	0.71	0.54	0.45	0.10	-0.05
-0.48	0.40	0.32	0.93	0.76	1.00	0.19	0.41	0.38	0.73	0.64	-0.10	-0.07
0.14	0.09	-0.01	0.19	0.50	0.19	1.00	0.47	0.33	0.35	0.29	-0.31	-0.07
0.32	0.79	0.05	0.23	0.35	0.41	0.47	1.00	0.05	0.77	0.45	-0.21	0.28
-0.05	0.16	0.56	0.36	0.71	0.38	0.33	0.05	1.00	0.02	0.29	0.67	-0.50
0.02	0.68	-0.15	0.72	0.54	0.73	0.35	0.77	0.02	1.00	0.28	-0.46	0.08
-0.43	0.21	0.63	0.36	0.45	0.64	0.29	0.45	0.29	0.28	1.00	0.10	0.21
0.14	0.09	0.68	-0.19	0.10	-0.10	-0.31	-0.21	0.67	-0.46	0.10	1.00	-0.36
-0.36	0.30	-0.23	-0.26	-0.05	-0.07	-0.07	0.28	-0.50	0.08	0.21	-0.36	1.00

APPENDIX C

DESCRIPTION OF INNOVATIONS STUDIED

Two types of innovations in educational practice were studied under the labels of "team teaching" and "professional staff development". In fact, the changes in school district practice included under the label of team teaching consist of a variety of practices, and the changes in practice labeled innovations in professional staff development also consisted of a variety of different activities. There are characteristics which are common to the innovations which were classified under one or the other heading, and this Appendix describes those common characteristics and illustrates the kinds of changes in practice which were classified under each heading.

Examples of innovations in professional staff development

To be an innovation, the school district's practice must have changed from the district's previous practice. To be an innovation in professional staff development activities, the new practice or activity must have effects which would be judged by many observers to aid the growth of the professional skills of the school district's staff. The staff includes teachers, principals, the superintendent, special staff such as librarians, curriculum coordinators, psychologists, counselors, audio-visual coordinators, etc. Following are some typical examples of innovations in professional staff development.

> A school district began to hold regular weekly meetings which included the superintendent and principals from the several schools as well as members of the superintendent's staff.
>
> A school district gave new encouragement to its staff to visit other schools, providing time by employing a substitute teacher during the absence of a teaching staff member and providing partial reimbursement for travel expenses during an approved visit.
>
> A school district began a program of periodic conversations about job performance between the principal and members of his teaching staff and between the superintendent and his principals.
>
> A principal and members of his teaching staff identified a problem or topic which they wished to study together and undertook a program of reading and monthly discussions which focused upon the problem or topic.
>
> A committee of teachers from several schools reviewed the curriculum materials being used for reading

instruction, met with several publishers' representatives, and recommended to the superintendent and school board the adoption of new curriculum materials for reading instruction.

A principal began the practice of taking a teacher's class while that teacher visited, on a volunary basis, the classroom of another teacher in the school.

A videotape recorder and printed checklist and scoring keys for describing teacher behavior were made available to teachers with an offer to assist them in arranging for a recording of their own classroom behavior and a private playback for the purpose of self-improvement in classroom practices. The videotape and the teacher-marked checklists were to be destroyed by the teacher after she had used them for her own instruction.

Teachers were given "mini-grants" after the review of a written proposal in competition with other proposals. The purpose of the grant was to support the teacher's own activity in curriculum development.

Parent-teacher conferences were scheduled for a different part of the week and were announced to parents in a different fashion in order to encourage increased contact between teacher and parent so that the teacher could have more knowledge of the parent and more opportunity to cooperate with and secure the cooperation of the parent in the student's program.

A school district changed its recruiting program, increasing the number of universities visited to get new teachers and increasing the geographical area from which the universities visited by the superintendent and principals are drawn.

Teaching salary increases were made by the school district and were tied, in a new way, to the completion of formal educational requirements beyond the minimum required by the state for certification.

A school district identified a new item in its operating budget, setting aside a small amount of money to be used for employing consultants from universities, educational research laboratories, and other

> organizations. The consultants employed with these funds visited the school district and discussed with individual teachers, or with groups of teachers and administrators, particular educational problems identified by the district or educational innovations which the district wished to discuss.
>
> A school district joined with other school districts on a nearby university campus for a five-day conference immediately preceding the opening of school in the fall. Monies available from the participating districts were used to employ outstanding scholars and educators to deliver addresses and conduct workshops. This activity was a part of the annual program of teacher orientation and in-service training required by state law.

These are examples of the kinds of changes in local school practice which were described by residents to our study team members as innovations in professional staff development programs.

Examples of innovations in team teaching

The principal characteristic required to qualify a change in practice as a "team teaching" innovation was that the relationship between classroom teachers be changed, particularly with respect to their in-classroom relationship and with respect to their joint-planning activities. We also looked for the textbook features of team teaching, including the formal designation of a lead teacher, the designation of a particular time during the week in which the team could plan their work together, the provision of clerical help in support of the team, the designation of a budget for use by the team, the involvement of special resources in team planning such as help from the librarian or the audio-visual coordinator or the psychologist, specialized use or scheduling of classroom space, sub-grouping of students within the team for particular instructional activities, and two-teacher or multiple-teacher presence in the classroom. These features were not required for the change in school district practice to be classified as "team teaching" for this study. Following are some typical examples of changes in practice which were classified as innovations in team teaching.

> A reading specialist and a classroom teacher in an elementary grade cooperate in the administration of diagnostic reading-readiness tests and interpretation of information from the tests. They jointly identify students who need specialized attention, then plan the classroom activities so that the reading specialist may meet individually with certain

students in the classroom or may meet several students in a small group for some individualized reading instruction.

Teachers in kindergarten through third grade levels in an elementary school jointly undertake a non-graded program for the students. Students are grouped by achievement levels for reading instruction, and are re-grouped for mathematics instruction. They progress through curriculum materials as rapidly as students in the group are able to complete the materials. The teachers and students occupy one wing of the elementary school. Students move from one classroom to another during the day in order to change from their reading group to their mathematics group or to other instructional groups. Teachers work alone in a classroom, specialize to some extent by working with students at particular achievement levels and in particular subject areas, and jointly plan the curriculum program with the other teachers in the non-graded primary program.

An English teacher and Social Studies teacher in high school plan a series of joint written papers for their students. The English teacher assumes responsibility for the students' work in written expression, mechanics, library skills, and relevanc and use of literary materials appropriate to the topic. The Social Science teacher assumes responsibility for the relevance and use of historical materials in developing the topic, understanding and use of methods appropriate to social studies in analysis of the materials, and appropriateness of field observations and work by the students.

Three high school teachers jointly plan and conduct driver and health education programs for ninth grade high school students. The program includes lectures and presentation of audio-visual materials in large groups and discussions and other activities in small groups.

Two elementary classroom teachers, faced with enlarged enrollment and a larger number of sub-groupings of students for reading instruction than in their prior experience, agreed between them that they would exchange students for reading instruction in order to reduce the number of reading groups within each teacher's classroom.

> A third grade teacher and a sixth grade teacher agreed between them to put their classes together for a portion of the mathematics instruction each week so that sixth grade students could guide third grade students in practicing number skills.
>
> Vocational arts teachers, with the support of members from the community, undertook a team project in which they constructed a house in the local community. Excavation, masonry, framing, electrical systems, plumbing and heating systems, and decoration were done by the students under the supervision of the teaching staff. An open house was held after the project was completed, with the names of the students who did the work appearing on a sign in front of the house and on a program for the open house.
>
> Biology instruction in high school is divided into lecture and laboratory work. One teacher conducts the lectures and another conducts the laboratories.
>
> Two elementary teachers at the fifth and sixth grade levels cooperate in the instruction of their students, permitting one to specialize in preparation of instruction for the language arts and social studies, the other to specialize in instruction for mathematics and the natural sciences. As a change from previous practice, students change classrooms during the day and have more than one teacher in these subject areas for the first time in their school careers.
>
> Teachers at the fifth and sixth grade level in several elementary schools in the school district jointly plan a science and mathematics fair, introducing the projects to the students in the late autumn and scheduling the fair for mid-winter. The teachers identify members of the community who can serve as judges for the projects. They supervise the students' projects, arrange space for the fair, invite parents and members of the community, and arrange for newspaper coverage.

These examples of "team teaching" vary in their features from textbook examples of team teaching through variations on departmentalization to informal cooperative arrangements among teachers. They all involve two or more teachers in a joint undertaking affecting both classrooms or a single classroom in which several teachers are working.

APPENDIX D

GENERAL DESCRIPTIONS OF PARTICIPATING SCHOOL DISTRICTS

Table 21 describes characteristics of the eight districts visited. All figures are for the school year 1967-68, except for the per pupil expenditure figures, which are from the 1966-67 school year unless otherwise indicated.

TABLE 21

GENERAL CHARACTERISTICS OF PARTICIPATING SCHOOL DISTRICTS

Characteristic	District							
	1	2	3	4	5	6	7	8
Enrollment	7500	1500	4700	7200	2100	1000	2900	2800
General Organization	1-6 7-8 9-12	K-6 K-12	K-6 7-9 10-12	K-6 7-8 9-12	K-6 7-9 10-12	K-6 7-8 9-12	1-6 7-9 10-12	K-6 7-12
Number of Professional (certified) Staff	310	84	288	350	98	55	135	148
Per pupil expenditure (a) (1966-67)	$340	$700	$540	$590	$430	$700 (67-68)	$280	$470 (67-68)
Pupil-staff ratio (b)	24/1	18/1	16/1	21/1	21/1	19/1	22/1	19/1
Number of Schools	11	2	13	11	8	5	6	8

(a) Per pupil expenditure does not include transportation or debt service.

(b) Pupil-staff ratio is calculated by dividing the enrollment by the number of professional (certified) staff.

APPENDIX E

DESCRIPTION OF MEASURES OF SCHOOL DISTRICT CHARACTERISTICS

Purpose of this appendix

The measures of the several variables discussed in Chapter IV are described there only in general terms. The questionnaires presented in Appendix G represent the method used to collect data from which the measures were derived. This Appendix bridges the gap between the general description in Chapter IV and the detailed questions and questionnaires in Appendix G. The reader interested in the particular questions which entered the measures may determine them by examination of the tables in this Appendix and examination of the questionnaires in Appendix G. The investigator wishing to reproduce portions of this study may find the detailed information he needs to do that in this Appendix and in Appendix G.

How to read Tables 22-25

Tables 22 through 25 describe the multiple choice questions and rating scales which were "scored" to develop many of the measures used in this study. They describe the initiating mechanisms (Table 22), the sustaining mechanisms (Table 23), the measures of innovation adoption performance (Table 24), and the measures of feedback mechanisms and overall educational performance (Table 25). A description of the features of Tables 22 through 25 can aid in reading the tables.

> Table title. The title of the table indicates the general class of measures described in the table (I,S,F,p,P).
>
> Measure label and name. The name of the measure and the alphabetic label used to identify the measure in Chapter IV are presented in a line which crosses the table and precedes the description of the questions and rating scales which entered the measure.
>
> Data source. The source of the data, either the member of the study team who visited (V) the district or a resident (R) of the school district, is indicated in the leftmost column of the table.
>
> Questionnaire form, page, and question number.
>
> Three columns in the table describe the questionnaire form, page, and question number used in the measure. This information allows the reader to refer to the actual question as it appeared in the questionnaires reproduced in Appendix G.

TABLE 22

MEASURES OF INITIATING MECHANISMS (I)

Data Source	Questionnaire Form	Page	Question Number	Scoring Direction	Description of Questions
	AR - Reading of professional and general literature about education				
					Amount of Influence on me, reading...
R	5,6	17	1	+	...Professional journals about education
R	5,6	17	9	+	...Articles in the public press
R	5,6	18	13	+	...Books about education
R	5,6	18	17	+	...Research reports by an educational research Organization
R	5,6	18	20	+	...In a nearby university library
					Number(none to 6 or more) of...
R	4	5	15	+	...Subscription I have to professional journals in education
R	4	5	16	+	...professional journals in education I scan
					Approximate amount of reading I do...
R	4	5	17	+	...monthly - articles about education not in professional journals
R	4	5	18	+	...yearly - books (none to 12 or more) about education
	BR - Participation in professional organizations for education and related fields				
R	5,6	17	4	+	Amount of influence by meetings of a professional society to which I belong
R	4	5	13	+	Non-member or member of one or more professional education organizations

TABLE 22 (Cont'd)

Data Source	Questionnaire Form	Page	Question Number	Scoring Direction	Description of Questions
	CR - Recent study in university courses, workshops, etc.				
					Amount of influence on me by...
R	5,6	17	5	+	...discussions with others during a workshop
R	5,6	17	6	+	...full-time study during a sabbatical leave
R	5,6	17	7	+	...summer (or evening) course at a university
R	4	4	9	+	Number and year of university courses or workshops last attended
	DR - Visits to other schools				
					Amount of influence on me of my visits to...
R	5,6	18	11	+	...a school not too far from our school(s)
R	5,6	18	21	+	...an educational research organization have or have not...
R	4	8	24	+	...visited public schools in other towns in last two years
R	4	8	25	+	...visited a college or university concerning local school business or interests in last two years
R	4	8	26	+	Traveled 50 or more miles on own funds for programs related to my public school role
	ER - Visits from consultants, university professors, and other outsiders				
					Amount of influence on me from...
R	5,6	18	12	+	...visits by people from other places to our school
R	5.6	18	14	+	...visits by a publisher or other supplier of school materials

TABLE 22 (Cont'd)

Data Source	Questionnaire Form	Page	Question Number	Scoring Direction	Description of Questions
	ER (Cont'd)				
R	5,6	18	15	+	...lecture(s) by a visitor to our town (schools)
R	5,6	18	19	+	...visits by a professional staff from the State Department of Education
	FV - Importation of ideas through hiring new teaching and administrative staff personnel				
V	8	1	3	+	none to one or more colleges or universities exist within 30 miles of the school district
V	8	2	7	+	Nine percent or less to 50% or more of personnel hired in last 5 years are professionals
V	9	3	4	+	District personnel's extent of use (none to a great deal) of "outsiders" (professional resources) in exploring or planning educational developments (innovations)

TABLE 23

MEASURES OF SUSTAINING MECHANISMS (S)

Data Source	Questionnaire Form	Page	Question Number	Scoring Direction	Description of Questions
	JV - Community support of increased budgets for education				
V	8	2	4	+	Local Tax rate has: decreased to doubled or more in last 5 years
V	8	2	5	+	District makes little attempt to: use Federal funds to thoroughly exploits available Federal funds
	KV - Board and superintendent awareness of innovation				
V	7	6	23	+	Superintendent's response to innovation adoption was: resistant to positive and active
V	7	6	24	+	School board's influence in innovation adoption was: unaware to knowledgeable and supportive
	LV - Parent and community interest and participation in supporting education matters				
V	8	3	11	+	Parent interest and paticipation in this school's affairs is: quite low to very high
V	8	3	12	+	District elections on school matters has been: none (zero) to consistent and strongly supportive in last 5 years
V	8	4	13	+	Professional personnel interviewed can report and name: none to several parents and citizens who actively stimulate and support educational development
	MR - Residents' involvement in local community affairs				
R	4	4	11	+	I - have never held to now hold - elected office in local, state or national government

TABLE 23 (Cont'd)

Data Source	Questionnaire Form	Page	Question Number	Scoring Direction	Description of Questions
	MR (Cont'd)				
R	4	4	12	+	I - have never hald to now hold - elected office in volunteer organizations in our town
R	4	6	19	+	Presently, I - am to am not - a member of a religious organization in our town
R	4	6	20	+	Presently, I am at least a moderately active member of: no to 4 or more volunteer organizations in our town, excluding religious organizations
R	4	7	22	+	My spouse has lived in this town for: a lifetime to less than one year to I have no spouse or spouse is not a local resident
R	4	7	23	+	My influence on most matters in this town is: non-existent to among the most influential

TABLE 24

MEASURES OF SCHOOL DISTRICT INNOVATION ADOPTION PERFORMANCE (p)

Data Source	Questionnaire Form	Page	Question Number	Scoring Direction	Description of Questions
	WV WW - Extent of innovation adoption in the school district				
V	7	2	7	+	Estimated percentage from: less than 10% to 80% or more of district's professional staff involved in a major innovation adoption process
V	9	3/8	B1/D1	+	Extent, from very limited to very great, to which T-T/PSD is found throughout the school system
	VV VW - Degree to which adoption conforms with best educational practice				
V	7	2	4	+	Major innovation discussed now shows: essentially none to essentially all of the features of "best educational practice"
V	9	4/8	B2/D2	+	Degree to which number - very few to very many - of attributes of TT/PSD are incorporated in the school system's application(s) of the concepts
	TV TW - Rate of spread of adoption through the school district				
V	7	3	8	+	Rate, rapid to zero (discontinued), of major innovation adoption implementation throughout system
V	9	4/8	B3/D3	+	Rate (extent/time), very slow to very rapid, at which TT/PSD has spread throughout system

TABLE 24 (Cont'd)

Data Source	Questionnaire Form	Page	Question Number	Scoring Direction	Description of Questions
	UR - Degree to which adoption aids the school district in achieving its educational objectives				
R	5,6	14	2	+	Adopting new PSD/TT programs in the public schools in my town will be, has been: a major hindrance to a major aid in achieving the schools' educational objectives
	PV - Degree to which enthusiasm for, and lack of resistance to, adoption is communicated by professional staff				
V	9	4/8	B5/D5	+	Degree of commitment, very little to extremely high, manifested by TT/PSD "movers"
V	9	5/9	B7/D7	-	Intensity of resistance, very mild to very intense, manifested by those reluctant to adopt TT/PSD
V	9	5/9	B9/D9	+	Degree of enthusiasm, very little to a great deal, for TT/PSD manifested by actual participants
	YR - Personal commitement through work and public statements to support innovation adoption				
R	5,6	15	3	+	In exploring whether to adopt new PSD/TT programs in our public schools, I have been (will be): essentially uninvolved to very active
R	5,6	15	4	+	My position on adoption of PSD/TT in the public schools in my town has been stated by me: only to closest confidantes or no one to in public speeches
R	5,6	15	5	+	My activities to generate support for my position with respect to PSD/TT have been: essentially zero to greater than on any previous educational matter
R	5,6	16	6	+	With respect to PSD/TT, I feel: not as well informed to more completely informed than most people in our town

TABLE 25

MEASURES OF SCHOOL DISTRICT PERFORMANCE FEEDBACK TRANSMISSIONS (F)

Data Source	Questionnaire Form	Page	Question Number	Scoring Direction	Description of Questions
	RV RW - Evaluation practices in the school district				
V	7	5	16	+	The major innovation is: not being evaluated to being evaluated repeatedly
V	7	5	17	+	The evaluation results are (were): not being used (or weren't developed) to utilized broadly and effectively in determining whether to extend innovation application or not
					Extent, none to frequent, or thoroughgoing, use of...
V	9	1	A1^a	+	...comprehensive system-wide (grades 1-12) assessments/evaluations
V	9	1	A1^b	+	...assessments/evaluations throughout single schools
V	9	1	A1^c	+	...assessments/evaluations of specific curriculum areas and across several grade levels
V	9	2	A1^d	+	...assessments/evaluations in limited areas; e.g., math achievement in all third grade classes in a single elementary school; need for remedial reading in the eighth grade, etc.
V	9	2	A2	+	In general, the assessments/evaluations used within the district to detect needs or opportunities for educational improvements and innovations are: very informal to very well organized

TABLE 25 (Cont'd)

MEASURE OF OVERALL EDUCATIONAL PERFORMANCE (P)

Data Source	Questionnaire Form	Page	Question Number	Scoring Direction	Description of Questions
XR - Degree to which residents perceive themselves as well prepared for their own roles in education (self-esteem)					
					Self-description of me as...
R	4	1	1	+	...well prepared for my job
R	4	1	2	+	...highly competent in carrying out my job
R	4	1	3	-	...not particularly liked by those with whom I work
R	4	1	4	+	...justifiably proud of my work
R	4	1	5	-	...ineffective in communicating about professional matters
R	4	1	6	+	...respected by my peers
R	4	1	7	-	...not particularly industrious
R	4	1	8	+	...highly motivated to do a good job
R	4	1	9	-	...incapable of making my own decisions
R	4	1	10	-	...not particularly respected by my superiors

Scoring direction. The scoring direction is indicated with a plus (+) or a minus (-). In "scoring" the answers to the questions, it was first determined whether the respondent's answer fell above or below the median response for all respondents on that question. (See Appendix G). Then the number of responses above the item medians were counted for all of the questions and rating scales in the measure. All responses on questions and rating scales have codes assigned to them for purposes of keypunching the responses into machine-readable form. Responses made above the median were scored one (1) and responses made below the median were scored zero (0). When this scoring convention is positively correlated with the coded item responses, the scoring direction is indicated as Plus (+). When the scoring convention assigns a zero (0) to the answers with a high code number and assigns a one (1) to the answers with a low code number, the scoring direction is indicated as Minus (-).

Description of questions. A shortened form of the questions included in the measure is presented in the table so that the reader may scan all the questions to get a general feeling for the content included in the measure. It is necessary to refer to the question itself in Appendix G in order to see precisely how the data were collected.

How to read Table 26

Measures developed from the nominations of people who fit specified roles, the basic information entering the communication net presented in Figures 2-9, are described in Table 26. The method for collecting the basic data appears in Questionnaire 5, Appendix G. Table 26 refers to the calculation of "the mean rating of influence" in several instances. This needs a general explanation.

Calculation of the mean rating of influence. Questionnaires 5 and 6 ask residents to name individuals in specified educational roles, then rank these individuals under several sets of instructions. Instructions for ranking for influence appear on Page 12 of those questionnaires. The residents ranked the five most influential roles and the five least influential roles among the eighteen roles described. These ranks were translated into ratings as follows:

TABLE 26

MEASURES DERIVED FROM THE COMMUNICATION NETS[a]

INITIATING MECHANISMS

a Number of different outsiders contacted by residents.

The total number of different outsiders' names supplied by the residents in a district was divided by the number of residents in the district supplying nominations.

d Ratings of amount of influence outsiders have on my position about a particular innovation.

The mean rating of influence (See Questionnaire 5, Page 12, Question 7, Appendix G) on my position attributed to all outsiders.

SUSTAINING MECHANISMS

b Teachers' report of the influence of superintendent and principals on their position about the adoption.

The mean rating of influence (See Questionnaire 5, Page 12, Question 7, Appendix G) on my position attributed to the superintendent (Role 02) and a principal in my town (Role 03) by teachers was calculated.

c Diversity of communication nodes in education-discussion network.

The number of different persons (from any role) named three or more times by the residents was treated as an indication of the number of "communication nodes" for education in that district This number was divided by the number of residents in the district supplying nominations.

---

[a] All data came from residents (R). The data were collected in Section One of Questionnaires 5 and 6. See Appendix G.

TABLE 26 (Continued)

e Influence felt by teachers and administrators from the board on their own positions about adoption.

> The mean rating of influence (See Questionnaire 5, Page 12, Question 7, Appendix G) on my position attributed to school board members (Role 06) by principals, teachers, and other staff was calculated.

h Influence felt from district educators from persons in many roles other than their own.

> In preparing the communication nets for each district (See Figs. 2-9), the mean rating of influence attributed to all sources by principals, teachers, and other staff was calculated. These mean ratings are shown in the arrows indicating the direction of influence in Figs. 2-9. Each arrow was compared to the identical arrows from other districts, and districts were noted as being above average (+, indicated by a lower rating) in strength of influence or below average (-) with respect to that particular influence (for example, the influence of students on teachers as reported by teachers). The measure "H" was calculated by counting the number of arrows in a district's communication net (Figs. 2-9), excluding arrows from outsiders, which contain a plus (+) symbol and dividing by the total number of arrows in the district's net.

FEEDBACK MECHANISMS

f Teachers' ratings of students on their own position about adoption.

> The mean rating of influence (See Questionnaire 5, Page 12, Question 7, Appendix G) on my position attributed to students (Role 14) by teachers was calculated.

g Teachers' and principals' ratings of influence of parents on their own position about innovation adoption.

> The mean rating of influence (See Questionnaire 5, Page 12, Question 7, Appendix G) on my position attributed to parents (Role 18) by teachers and principals was calculated.

Rank	Rating
1	1
2,3	2
4,5	3
6-13	4
14,15	5
16,17	6
18	7

> High influence is indicated by the ranks 1, 2, and 3, and by the ratings 1 and 2. Low influence is indicated by the ranks 16, 17, and 18, and by the ratings 6 and 7. Calculation of a mean rating was done in the usual manner for calculating an arithmetic mean.

Data for the measures described in Table 26, and for the communication nets in Figures 2-9, were developed from all residents in the district, except as noted in Table 26, without regard to the particular topic (team teaching or professional staff development) of the interview and without regard to the questionnaire (Questionnaire 5 or Questionnaire 6) completed by the resident.

APPENDIX F

A VIEW OF THE INFLUENCE ON INDIVIDUALS IN A SCHOOL DISTRICT

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A VIEW OF THE INFLUENCE ON INDIVIDUALS IN A SCHOOL DISTRICT

I. INTRODUCTION TO THE PROBLEM

That process by which educators come to develop or adopt innovations for more effective teaching is preeminently a social one. As such, it is intrinsically one in which communication plays a major role. By definition, the process of innovation is one in which the status quo is altered. People come to share a set of new ideas and commit themselves to new patterns of conduct. Communication, then, can be viewed as the major instrument involved in the implementation of change, or conversely, in the maintenance of stability. To understand the nature and impact of communication is largely to understand the process by which innovations come to be utilized.

In this paper we shall center on communication as it plays a role in shaping the attitudes or opinions of others. We shall first attempt to explicate the various conditions or factors which may cause a given communication to be accepted or rejected. Are there some forms of communication, some media, some persons, or some situations, for example, which may increase the probability of a given communication impressing a given audience? Second, we shall look at a number of factors which may cause a person to maintain stability--regardless of the amount of persuasive communication which has been directed his way. Next, we shall look at a number of variables which may help us to predict who will be most active in the process with respect to the initiation of communication. What positions, beliefs, or personal factors, for example, may lead a person to attempt to influence others? Finally, we shall take a brief look at the problem of social structure with respect to the communication process. Here the attempt is to sharpen sensitivity to patterns of communication as they may be affected by institutional structure.

A few preliminary considerations deserve our attention before undertaking the analysis. The concept of "influence" is indeed a broad one, and has been viewed in a number of different ways by varying theorists. While it is usually employed to deal with situations where individual or social change is involved, further differentiation is necessary for our purposes. In particular, we shall need to be more specific with respect to what it is that is being changed. Three separate aspects of the person are implicated: cognitive, affective, and behavioral. In the first case, communication may alter the way a person thinks about a given issue. Information on the Senate's view on federal aid to education may alter our estimate of whether such aid will be provided or not. However, this estimate may change independently of our feelings about such aid, or our behavior. In the case of affect change, communications may serve to alter our feelings about a given object or person. We may be swayed by a speaker's invective against federal assistance to higher institutions of learning, but know no more about the situation or act any differently as a result. Finally, communication may change a person's behavior without altering either his thoughts or feelings about what he is doing. In this case, we are largely dealing with the process of coercion. A teacher, for example, may be ordered to use a given innovation, while she may have no psychological commitment whatever to the action. In dealing with the process of communication and influence, then, we shall want to keep in mind these three separate areas of change. Some factors or conditions may effectively produce change in one area but not in others, and a global concept of influence alone may mask these more subtle differences.

A second preliminary concern revolves around a distinction which can be made between physical versus social reality. At one time it was widely thought that an innovation would be accepted or rejected as a function of its objective properties alone. That is, it was felt that innovations were developed and researched, and depending on the outcome of the research, the applicability of the innovation to a current situation, and the funds and personnel available, it would either be implemented or not. This approach emphasizes, then, the physical reality of the situation. On the other hand, contemporary investigators (cf. Miles, 1964) have criticized this view and turned their attention to the various social factors at play in the innovation process. It has been felt here that the major determinants of acceptance or rejection have to do with such factors as attitudes, beliefs, personality, social roles, social organization, and the like.

The approach taken in the present paper will be more akin to this latter viewpoint. We shall not essentially be concerned with the flow of factual information in educational systems. Whether teaching machines, for example, have been thoroughly researched and whether the results of research are available, or have been widely disseminated, will not be our concern. However, the differential impact of research information as a function of whether it was received by word of mouth or in written form, whether a prestigeful or unprestigeful figure initiated it, or whether the recipient had been in the school system a long or a short time will be of vital interest. In effect, the present analysis will hold various physical factors constant, and be more concerned with factors in the social realm.

Finally, there will be much talk in the present paper about "systems". This concept, too, has been used in a variety of ways, some ambiguous, and others highly systematic. In the present context, however, we shall employ the term as a sensitizing device. A system may roughly be defined as a configuration of interacting entities. This interaction may be functional or dysfunctional to the system as a whole, and since all entities are interdependent, the interaction between any two entities could be said to alter the configuration of the entire system. A group of entities with high rates of interaction within, and low rates with entities without, may be said to form a sub-system. Subsystems share the same properties as systems, but the viability of any system can be viewed as a function of the configuration of the subsystems. Thus far, the analysis may seem somewhat remote to the process of influence or the process of educational innovation. Matters will become much clearer as we develop a model of communication relevant to the educational system.

II. THE COMMUNICATIONS SYSTEM

A. The General Model

One could begin by considering every person in the country as an entity in the communication system. All relationships among people would thus have potential relevance to the problem of educational innovation. Obviously, however, such an approach is too unwieldy and nonspecific. On the other hand, one could take the position that since innovations take place within educational sub-systems alone, then all our attention should be focused in this direction. Here, however, it should be realized that innovations develop from many other sources than the educational institutions alone. Rather, outside sub-systems place constant pressure on educational sub-systems to change or to modify practices. Thus, what is needed is a mid-range model, one which will allow us to specify a set of actors or agencies whose opinions or actions might be most likely to play a determining role in the process.

The range of potential sub-systems which one might initially wish to consider in this model is a broad one. At the center of the network is the educational sub-system. This sub-system would include the school superintendent and his staff, the local school board, principals, teachers (and related staff) and students. Communication, and thus influence, could take place horizontally among individuals at any of these levels and vertically between levels.

There are also opportunities for individuals within the educational sub-system to communicate with those in another. Regional and national teachers' meetings, for example, provide an excellent opportunity for teachers from different systems to exchange views on various innovations. It is thus necessary, within the model, to multiply the number of educational sub-systems.

While the local educational sub-system is of cardinal importance, this sub-system is also invested in a larger social matrix. Several additional sub-systems are particularly noteworthy. First, the maintenance of public school systems is essentially the responsibility of the political apparatus. This apparatus may be usefully sub-divided into local, state, and national levels. At the local level, superintendents, school board officials, and budgets may all be controlled by the political machinery. Either direct or indirect influence may thus be brought to bear on the adoption of innovations. At the state level, funds may be allocated or policy developed which would have state-wide applicability. Innovations requiring extensive revision or a large financial outlay would most likely fall within the political purview at the state level. Perhaps more limited in relevance, decisions can also be made at the national level which could potentially affect local innovation. Specialized subsidies for certain local innovations or programs are a means for directly affecting the local scene. Personal views of politicians on the national level may also have an effect, as the post-sputnick upsurge of special science curricula might indicate.

While actors in the political sphere may play an important part in the influence process, professional educators are perhaps even more important. Not only are they centrally involved in training teachers, and thereby engendering values and outlooks, but they also conduct the major share of the research on innovations. As Rogers (1964) has shown, research findings receive top ranking by principals and teachers alike as influencing the level of a given innovative practice. Some sub-populations may be delineated here: those responsible for undergraduate training of potential teachers; those actively engaged in teaching teachers at the graduate level; those involved in retraining or in-service training of teachers; and those actively carrying out research programs. To be sure, some individuals may operate in all of these domains. However, in keeping with the communications model, it is useful to distinguish among various sources of communication.

A third sub-system, which may act as an important source of influence, is the public. On the local level, members of the community may bring direct pressures to bear on school officials or teachers. In the Rogers (1964) study cited above, the lay public was rated by principals and teachers as having more influence in securing changes in school programs than the state department of public instruction. At the state and national levels, the public may be empowered to vote for officials or bills that vitally affect the innovation process. And, too, survey results often reflect mass opinion which may have reverberating effects.

As can be seen, a complete understanding of the process of innovation in educational systems would require an analysis of all communication among and within sub-systems. For example, members of the political sub-system may be affected by communication from the general public, and specific actions may result with respect to their behavior toward the educational sub-system. Or researchers in the professional educator realm may communicate their results directly to persons involved in teacher retraining programs, who in turn, pass them along to teachers. An analysis involving all of these types of communication is still too broad for our purposes. Rather, as an optimum point of departure we wish to concentrate specifically on the effects of communication inputs into the education sub-system, and on the initiation of communication among members of that sub-system.

B. The Specific Model

The model thus far has concentrated on groups of individuals without considering the isolated instance of communication. As a way of setting up the analysis to be undertaken below, on factors affecting the impact of a given communication, it will pay us to consider the isolated instance in greater detail. Much more is involved than simply noting that a school principal tells a teacher that he is impressed with thus and so method for teaching mathematics. Rather, we need to expand this simple action to specify the classes of variables or factors that may make a difference as to whether or not the teacher incorporates the principal's comment. First, we have the communicator, a single member or representative from any of the sub-systems discussed above. All other things being equal, communicators will vary with respect to the amount of influence they may have. Principal _A_ may have more effect than principal _B_, or a school superintendent more effect than either. It will be the task of the next section to delineate some of the ways in which such individuals differ and how these differences enhance or detract from the effectiveness of their communications.

As Marshall McLuhan has so dramatically emphasized, the mode or vehicle for a message may have as much influence as the message itself. A written communication appearing in one periodical or format may have a greater impact than the same communication in another context. Or, a written communication may have more or less effect than the same message when verbally or visually presented.

In addition to the communications source and the packaging of the message, there is the content of the message to consider. What kinds of persuasive tactics does it employ; what is its logic; what semantic or syntactic forms are utilized? All these questions point to ways in which the same message may be varied for differential effectiveness.

The fourth domain which must be taken into account is more vague in character, but equally important. The sense we make of or our reaction to a given communication may depend in large part on the events or the environment in which it is imbedded. A person's smile, for example, may appear humanitarian in a context where he is giving another person a gift; if he were flailing the other with a whip, the smile could communicate something quite different. Similarly, in a case where we see an individual may gain personally from a given communication, we might be less trusting than the same communication in a context where personal gain was irrelevant. And too, when we feel that our decision may be supported by our acquaintances, we may be more given to a change-inducing communication than when we feel the environment to be antagonistic. All of these factors we may place under the rubric of context. They have to do with the persuasive effects of a communication not based on its intrinsic properties as communication, but on the environment in which the communication takes place.

All of the factors mentioned thus far have operated as stimulus events. We have acted as if the person were a passive entity into which we were pouring the environment. However, the individual receiving a communication is hardly passive, and indeed, his individualized style of relating to the world may be the single most determinative factor in shaping his reaction to persuasive communications.

In gauging the impact of a given message, here one might wish to know about the recipient's age, education, values, motives, and so on. This information would potentially allow a communicator to tailor-make his communication to the particular style and needs of his audience.

These five classes of variables (communicator, medium, message, context, and recipient), comprise the units of analysis for the more detailed model of communication within the large communications framework described above. We must look at these variables in light of the three types of change which may be induced as a result of communication, as discussed earlier. The model suggests that certain factors may have an impact in one of these areas, but not in others. We shall return to the problem later. At this point we may turn to a more detailed examination of these factors and their potential effects.

III. FACTORS AFFECTING REACTIONS TO INFLUENCE ATTEMPTS

In this section we shall systematically review available evidence and make a number of extrapolations covering the differential effects of the factors in our "specific" communications model outlined above. The attempt here will not be exhaustive, as some of the literature in the area of social influence is not particularly germane to the problem of educational innovation. And, too, we shall often be forced into conjecture, inasmuch as there is often little or no available evidence on factors which intuitively seem critical with respect to the innovation process. Once this analysis has been completed, we will be in a better position to deal with passivity, and then the motivation to influence others.

A. Communicator Characteristics

From the existing literature two factors or variables associated with the communicator loom as important in determining his effectiveness:

1. Credibility

One might commonly suppose that a person who appears to be knowledgeable about a subject will have more influence in communicating about it than one who is perceived to be ignorant. There is also ample research supporting this supposition. In classic attitude change studies by both Hovland & Weiss (1951) and Kelman and Hovland (1953) found that when a persuasive message was associated with an expert in the field, it produced more immediate change in attitudes (on both a cognitive and affective level) than the same communication when associated with a person whose expertise was irrelevant to the issue involved.

So reasonable do these findings seem, that we don't hesitate to apply them to the area of educational innovations. Most likely, a teacher who felt that she could trust a communicator to be thoroughly conversant with an innovation issue would be more accepting of his opinion than the opinion of a person she felt to know very little about the topic. The more important aspect of the problem has to do with identifying the members of the various sub-systems in our model who might be perceived as being credible. In its larger dimensions, the problem is a highly complex one, because credibility may vary by issue and by recipient. That is, few persons in the various sub-systems might be perceived to be knowledgeable over a wide variety of innovations, and a person who is seen as highly credible by one sub-population (e.g., teachers), might not be seen as credible by another (e.g., school administrators). As a rough first approximation, however, we might single out those in the professional education sub-system as having the greatest potential influence as far as the credibility dimension is conceived. Such individuals might commonly be seen as most conversant with available knowledge on an educational issue, and highly engaged with the generation of new knowledge. Persons in the educational sub-system might be perceived by each other as the by-products of the professional education system, and thus, less credible. School board members and students might be seen as least credible. The interesting hypothesis is that teachers who have participated in teacher retraining programs may have, for a certain period of time, an enhanced capability for influence as a result of being closer to the professional sub-system. At least for a time, credibility should be increased, and they might be relied upon as sources of information. Similarly, a superintendent or principal who holds a more advanced education degree than his staff may be perceived as more credible and thus be more influential. For example, Lin, Leu, Rogers, and Schwartz (1966) found that teachers were more likely to be more favorable to an innovation if they felt the school superintendent was also favorable; the views of the principal and the department head, however, were irrelevant by comparison. On the other hand, the newly trained teacher, while being a more immediate by-product of the professional sub-system, may not be so credible because of her lack of experience in the everyday process of education.

It should be finally noted that the classic research on communicator credibility shows maximal differences immediately after the communication has taken place. Over time, the differential effects of high vs. low credibility communicators tend to wash out. The research strongly suggests that the message becomes dissociated from the source, and over time has its own effects. If the innovation is "reinstated," (i.e., re-associated with the message) the initial effects reappear.

This implies that continued association of a credible source with his position should be maintained over time for maximal change to occur in the educational system. While research articles, for example, may produce a strong effect when associated with the researcher's expertise, over time, the effect of the expertise will be lost.

2. Attractiveness

While some communicators may be highly credible, this is no guarantee of their likability or attractiveness. And, as the research literature demonstrates, attractive sources are more influential than unattractive ones. Here the data are more relevant to behavior change than to cognitive or evaluation change. However, as a number of studies show, when others are liked or evaluated more positively, they will induce more behavior change in others. Indeed, others may conform to their opinions or judgments, even when these opinions or judgments are felt to be false (cf. Asch, 1956; Thibaut & Strickland, 1956). There may be several mechanisms involved here. For one, people may be more willing to comply with the demands of a friend simply to keep his friendship. In the same way, a teacher may be more willing to alter her "tried and true" methods of teaching in order to please a principal with whom she is friendly. Lin, et al, (1966) found, for example, that teachers who became aware of innovations earlier and were more accepting of change were also more likely to be teachers who felt their principal frequently discussed teaching methods with them and approved of them as teachers. In addition, people may also be more attentive to the facts or arguments presented by a friend, or may find that his evaluation is influenced although his reasoning is not. Whatever the underlying processes are, communicator attractiveness appears to play an important role.

Unlike the case of credibility, it is difficult to speculate about the distribution of attractiveness over the various sub-systems. One might make an argument about the attractiveness of political participants but there are no clear data. The one hypothesis that can be made is based on further evidence of a voluminous sort (cf. Marlowe and Gergen, in press, for a review of these many studies) that shows a relationship between similarity and attractiveness. People are much more likely to become attracted to others whom they perceive to be similar to them in outlook, orientation, values, goals, and so on. If this is true, then we might also expect that patterns of friendships or companionships would be more likely to develop within sub-systems as opposed to across. More specifically, such patterns would be more likely within the sub-divisions of various sub-systems; for example, administrators would be more likely to have other administrators as friends than teachers. If we follow this reasoning, we are led to the conclusion that those within a sub-system are more likely to have influence with respect to innovation than those outside. (Weiss, 1957, actually demonstrated that if persons were led to feel that they were similar to a communicator on an issue, they would be more influenced by his communication on a second but separate issue.) This speculation could run counter to the prediction based on considerations of credibility. However, we are here talking about factors which may have additive or subtractive properties and these contradictory tendencies are quite plausible.

B. Communication Medium

In addition to those effects attributable to the communicator, the medium by which he communicates may also play a substantial role in enhancing or detracting from the efficacy of a given message. This statement must be qualified to some extent, since research in this area runs headlong into important methodological difficulties. Various media do not fall along a single continuum. Television, for example, may have a greater capacity to hold its audience than radio, while radio may allow the audience a greater chance for independent thought and analysis. And yet, some telecasts don't hold their audience and some broadcasts don't allow independent thought. Depending on the type of material to be presented, the audience to be reached, and so on, varying media may be varingly effective. Blanket statements comparing one with another are misleading.

It is in this light that a number of findings comparing oral versus printed presentation must be viewed. These early studies (cf. Wilke, 1934; Knower, 1935, 1936; Cantril and Allport, 1935; Lazarsfeld, Berelson, and Gaudet, 1944) all suggest that oral communication is more superior to written in producing attitude change. In the area of educational innovation, the implication is that face-to-face communication is more effective than written. On the level of systems, one might further speculate that influence within a given sub-system, because of its greater reliance on face-to-face interaction, is of more importance in the process of change than is communication from one sub-system to another (more normally, written communication). However, returning to our earlier argument, we can't simply assume these types of findings would hold across all messages and communicators. And even when the same message is compared using two media, more is being varied than the media themselves. Much would depend on the document in which the printed presentation appeared, and the particular speaker chosen to make the oral presentation.

In this light, a different mode of analysis seems desirable. Specifically, it seems wise to consider a number of single dimensions which may be applicable across media. Any single instance of communication could then be ranked or placed along each of these dimensions or variables. What might some of these dimensions be? Stemming from Hovland's (1954) analysis, the following would seem relevant:

1. Prestige

Some media may have a greater prestige value than others, and the content is thus accepted because of the high value placed on its "packaging". For persons with an advanced education, an article appearing in an academic journal might be more prestigeful than the same article appearing in the popular press. The qualification of "advanced education" in the above example raises a second point of importance here: What is prestigeful for one person or group may not be for another. A study of prestige should then additionally take into account the sub-division of the audience.

2. Credibility

People tend to be more reliant on information appearing in one context than another. This variable may not be so much related to the physical medium itself as to the recipient's view of the "controller" of the medium. Thus, the great trust some might feel for information presented by certain periodicals might well be a function of their estimates of editorial policy. In this sense, credibility here may simply be an extension of the communicator credibility variable discussed above.

3. Capacity to attract and hold attention

A public speaker probably has the capacity to attract more attention than he would be able to by pamphlet; television commands a greater audience than radio -- for some issues. Conceivably, the greater the audience the medium can attract, the greater its potential as one instrument of change. In addition, however, some media have a greater capacity to hold the attention of an audience. Radio and television are easier to shut off than is face-to-face interaction.

4. Extent of audience participation

One valuable feature of lecture and discussion over television is that it allows the audience to become actively involved. Involvement appears to operate as a change-inducing mechanism. This fact will receive further elaboration later in this paper in a discussion of the effects of social commitment.

5. Visualization

For some types of issues, a message may be much more effective if accompanied by visual presentation (cf. Klapper's review, 1949). Television and face-to-face interaction allow this adjunct, and for certain issues may thus have enhanced efficacy.

In studying the innovation process, it would seem auspicious if one could assess the range of media used in communication and the frequency of usage. Subsequent ratings by differing sub-groups of these various media along the dimensions listed above, would yield an estimate of total efficacy. Such an estimate could be of potentially great value to the person trying to effect future change.

C. Message Content and Organization

In turning to the persuasive message itself, four factors seem particularly important with respect to inducing innovation:

1. One-sided vs. two-sided communication

Persons in the educational sub-system may be confronted with many differing types of communication concerning a given innovation. Some of these may be highly biased in the sense of presenting arguments for only one side of an issue, while others may cover both the pros and the cons in attempting to maintain a particular position. Which type of message is likely to be more effective? In a classic study of a large population of military men, Hovland, Lumsdaine, and Sheffield (1949) showed that neither type necessarily had a larger effect, but that very interesting results could be achieved if the recipient population were sub-divided. Of major relevance was the split made between those with high versus low educational background. Within the low-education group, the one-sided arguments were generally more persuasive. In the educated groups, on the other hand, exactly the reverse was true. Perhaps educated persons are more highly trained to make a decision based on a seemingly unbiased view. However, whatever the mechanism, there seems good reason to suspect that within the educational sub-system of our model, two-sided communications should have a greater impact.

An additional reason for using two-sided communications within this population comes from a study by Lumsdaine and Janis (1953). These investigators found that people who had been exposed to two-sided communications were strikingly more resistant to later communication which attempted to change their position. In other words, if attitudes toward an innovation could be altered in a positive direction through two-sided communication, such attitudes should be much more resilient over time.

One is, of course, tempted to formulate hypotheses concerning the reactions of differing sub-populations with respect to types of communication. For example, it is quite possible that parents and elected political officials are more given to a one-sided approach than are professional educators. As such, they may appear to the educator to be highly biased, and their views more suspect. Relevant, but not conclusive, is Roger's (1964) finding that lay citizens were ranked by principals and teachers 11th out of 14 groups in their capacity to secure change in local school programs. Elected political officials were not included in the ranking. On the other hand, research studies were ranked substantially higher than the views of appointed political officials.

2. Rational vs. emotional communication

One way of inducing change is to arouse the recipient to anger or fear, and such a method may be compared to the use of logical argumentation. Judging from what we have said in the preceding section we might guess that members of the educational sub-system would be more influenced by the latter type of appeal than by the former. After all, the process of education itself is largely based on a faith in rationally derived decisions. Again the experimental literature offers some support to this supposition. Janis and Fesbach (1953), Berkowitz and Cottingham (1960), and Leventhal and Niles (1964), have all demonstrated that under a number of varying conditions increasing the amount of fear aroused in a communication decreases the acceptance of the message. People who are frightened the contents of a message may become defensive, skeptical, or repress the implications of the message. At any rate, their actions or intentions are less affected.

A study by Sargent (1965) of chief school administrators and their attempt to influence educational innovation is relevant here. The administrators used in this study had had substantial experience in attempting to influence school teachers to adopt a variety of innovations. One of the concerns of the study was in what methods these officials had found most effective. The one type of strategy which administrators used least often was reward and punishment. Devices such as threat, demotion, salary decrease, giving undesirable assignments, promises, and the like were simply not utilized with any high degree of frequency. These types of approach do not instigate rational decision making, but rely on the use of forces extrinsic to the properties of any given innovation. On the other hand, rational appeals were used with high quency. Action research, survey results, and logic, for example, were all frequently utilized by the administrators. Further, administrators in schools where numerous innovations had been adopted were more likely to have employed these rational techniques than were administrators from a non-innovative context.

3. Forced Compliance

A third major aspect of communication content has to do with the degree to which it directs or requires action as opposed to suggesting or offering alternatives. That is, some forms of communication are more directly coercive, and the degree of coercion may have much to do with the recipient's degree of acceptance. This issue is perhaps most apparent when considering communication between members of various status levels within the education sub-system, but there may also be important instances in which members of the political or public subsystem utilize coercive communication in dealing with those in the educational domain.

In answer to the question, experimental work on social influence has repeatedly shown the efficacy of low pressure communications. Suggestive evidence first comes from a study by Cooper and Dinerman (1951) which indicated that in a more intelligent audience, if the communicator drew specific conclusions he was less persuasive than if the audience was allowed to draw their own conclusions. More dramatic are studies of forced compliance which have largely been done to validate various dissonance theory assumptions (Festinger, 1957). Studies here (cf. Davis and Jones, 1960; Festinger and Carlsmith, 1959; Cohen, 1962; Carlsmith, Collins and Helmreich, 1966) have generally found that the more a person is forced into a position the less likely he is to come to adopt the position privately. For instance, if paid a large amount of money for publicly advocating a position counter to one's own opinion, the person will be less likely to alter his private opinion than if he engages in the same behavior under conditions where choice is high.

It is important to keep in mind here the distinction made earlier between behavior change and cognitive or emotional change. Coercion may have the effect of producing overt changes, as in the case of invader demanding allegiance from a victimized population. However, the greater the coercion, the lesser the amount of opinion or attitude change he might expect to get. Brehm (1966) has developed a theory which proposes that all limitations on one's freedom of action produce a counter tendency to reestablish autonomy. In this sense, any attempt to coerce behavior should be met with an opposing reaction. While it is clear that this is not universally true, at least in terms of overt behavior, the theory makes good sense in light of a good many findings.

Related to this issue are several findings from the area of education research. In the study by Sargent (1965) cited above, it was found that school administrators were more likely to encourage free criticism and open discussion in attempting to induce innovation than to use reward and punishment. In addition, successful administrators were more likely to use these methods than unsuccessful ones. In their study of staff leadership in public schools, Gross and Herriot (1965) have noted that, "if administrators urge their subordinates to try a new practice, it may be viewed as an encroachment on their rights as professionals." (p.99) These investigators found that in over 55% of the population of teacher groups studied, the respondents wanted their principals to exert less pressure. (It should be noted, however, that the remaining group wanted the principal to exercise more control. This suggests that individuals in an organizational setting do not necessarily wish for no direction or supervision, but rather, that there may be some optimal amount of freedom for individuals. It also seems quite likely that this "optimal" amount may be affected by situational as well as personal factors.) Along lines similar to the above, Becker (1953), Gouldner (1954), Pelz (1957), and Kahn and Katz (1960) have all suggested that supervisory encroachment on the freedom or autonomy of staff personnel may hinder their functioning.

D. The Communications Context

As we have mentioned above, communication always takes place in a specific situation or context. The contextual backdrop, too, may cause a given communication to be more or less persuasive. There is no single or traditional scheme to fall back on in discussing context variables. From a broad array of literature, the following factors would appear to be most relevant to the present issue:

1. Social Support

Several lines of research converge to suggest that the more agreement on perceives among his associates concerning an issue, the more likely he is to join in this agreement. In the classic studies on conformity, for example, Asch (1956) has shown that people will deny the information furnished to them by their senses in order to respond uniformly with a group, all of whom are making erroneous judgments. Asch has also demonstrated that the presence of one non-conformer has dramatic effects in freeing the individual to respond as his senses dictate. Along similar lines, Thibaut and Strickland (1956) have shown that increasing the emphasis on social acceptance within a group has the effect of increasing the amount of conformity to the group consensus.

As the reader may have noted this line of research has centered on behavioral conformity. In terms of our specific model, however, there is no guarantee that change also occurred in cognition or affect. On the other hand, if we take the process a step further, generalizations can be made in this direction. Presumably, persons conform to group norms in order to secure the approval of others in the group. The Thibaut and Strickland study cited above most strongly suggests this. Conformity also assures that people do receive positive feedback from others when they show agreement with them. At this point three separate studies by Scott (1957, 1959a, 1959b) become relevant. Each of these experiments showed that when a person is rewarded for taking a position, he subsequently comes to change his attitude more toward this position than if he is negatively reinforced for his stand. In these cases, support subsequent to behavior change, produced attitude change.

The extrapolation is tenuous, but is interesting in light of these arguments to consider findings by Lin, et al (1966) to the effect that teachers who felt their school to be more cohesive became aware of educational innovation more rapidly and were more favorable to school-adapted innovation. It may be that in schools where they feel that they will be supported, teachers are more open to accepting new ideas. Findings by Fox & Lippitt (1964) to the effect that summer workshops, plus consultation, plus clinic sessions were more effective than any of these methods alone in producing innovation, can also be looked at from the point of view of social support. In each of these situations it seems clear that the participant is supported for agreeing with the aims of the workshop, etc.

2. Alienation

A great deal has been said in recent years about the subject of alienation. Without elaborating on all the many subtleties and points of view, it is fruitful at this point to call attention to a recent study by Barakat (1966). Barakat was interested in alienation of teachers from school systems in which they taught and the relationship of alienation to performance. His concept of alienation is multiplex. Using his definition, a school where a high degree of alienation exists would primarily be one in which there was a high degree of centralized power, impersonal relationships predominated, demand for conformity was high, cohesiveness was low, the principal was permissive, and means and goals were dissociated. Barakat was indeed successful in finding that such conditions did produce feelings of alienation among teachers.

It also seemed reasonable that those in alienated systems or the alienated in any one system would be less likely to adopt innovations. Their investment in the position, and involvement in education or the school system should be less intense. The data did show that more alienated teachers were less likely to adopt new teaching practices. However, alienated teachers were found more often to develop their own innovations. They also were most likely to retreat from the system, next to act upon, and least likely to comply with new policy. It should also be noted, however, that in discussing innovation at the college level, Watson (1964) has noted that the most alienated and rebellious may be more innovative.

In future research in this area, it would be highly advantageous to separate out the different variables constituting the alienating situation. Many of the factors are covered elsewhere in this paper under different rationale. It would be possible, however, to avoid this more complex task and measure feelings of alienation directly. This type of measure could be used directly in predicting reactions to communications or to innovations.

E. Recipient Factors

Thus far we have largely dealt with environmental factors influencing the recipient's reaction to a given communication. We have said little about the recipient himself, and the fact that the same communication may have quite different effects on different recipients. There are a wide number of factors that one might ultimately consider here, but among those which seem central to innovation-relevant communication, the following seem most important:

1. Status The essential point here is a simple one: persons with low status in any system will conform more to persons higher in status than vice versa. The elaboration of this point, however, presents a number of complexities of some significance.

In the first place, the distinction we made in the early part of this paper among various kinds of influence becomes very salient here. A superintendent may be able to influence a principal, or a principal a teacher, to adopt a given innovation. This can be done because the status of the senior member puts at his disposal instruments of reward and punishment which are not counterbalanced on the junior level. The utilization of such instruments may be very effective in producing behavior change. The junior member may have little recourse but to conform to the senior's wishes. This approach would account for studies such as those of Mackenzie (1964) who found that superintendents were generally most influential in altering educational systems.

However, in terms of producing change in cognition or affect this method is likely to have little consequence. Studies in the area of cognitive dissonance have amply demonstrated the ineffectiveness of using rewards and punishment to produce these latter types of change. Studies by Festinger and Carlsmith (1959), Cohen (1962), and Davis and Jones (1960), for example, all show that it is possible to induce behavior change through offering reward. However, each of these studies shows that the greater the reward (i.e., the greater the reinforcement for conforming) the less is the cognitive or affective change produced. In essence, when a recipient can be influenced to do something "on his own hook," and not because he is being rewarded or punished, he is more likely to become psychologically committed. The earlier discussion on autonomy is, of course, quite relevant here.

While communication downward in a hierarchy yields more conformity than upward, it should not be thus assumed that communication upward does not have an impact. In most hierarchies junior members do have some degree of counterpower. A study by Jones, Gergen, and Jones (1963), for example, showed that although juniors conformed to senior members of a hierarchy more than seniors to juniors, there was a substantial amount of yielding among the senior sample. However, it was also found that the more relevant the issue to the senior's domain of control, the less likely he was to yield to influence pressures. The implication is that principals may bring substantial pressure to bear on superintendents, and teachers may influence principals. However, if the issue is one in which the higher status member feels eminent domain, has a vested interest, or feels himself to be an authority, such pressure is likely to have little effect. This would mean that with respect to some innovations which, for example, teachers might use daily but which would have little to do with the principal, a direct appeal by teachers would have a positive effect. For other issues, the same tactic would have little or no pay-off.

One must be somewhat cautious here in specifying the range of conditions under which the above might hold. There is good evidence from a study by Gergen and Taylor (in press) that senior members of a hierarchy may sometimes react to pressure from a subordinate by counter-conforming or rebelling. The conditions under which this is most likely to be true is when the autonomy and leadership of the superior are salient. In more informal circumstances, the finding doesn't hold. Nor has it been found that subordinates, under any condition yet studied, counter-conform. In some ways these results are similar to those discussed just above. They suggest that when an issue is highly relevant to the role to which the superordinate is committed, not only are junior members likely to get little conformity to their demands, but they may even evoke a counter-reaction -- and simply because they attempted to bring influence to bear.

Before closing this discussion two notes are worthy of mention. First, status in most real-life situations is not a "pure" variable. That is, a superior may be able to sanction the behavior of his subordinates either positively or negatively because he occupies a certain formal position. However, in addition to this factor, his occupation of the position may give him additional properties which operate independently of his controlling abilities. In this section we have emphasized these abilities. However, in normal situations status is likely to carry with it a certain degree of credibility and attractiveness as discussed in part III-A above. Thus, part of the reason for the increased influence of the high status person may reside in the attributes people project onto him rather than in his access to sanctions.

Second, the generalizations we have made above are decidedly more relevant within the educational sub-system than across systems. As we have mentioned, our emphasis has been on status and the control of sanctions. Such control does not typically take place across systems, but is limited to processes internal to a given sub-system. While credibility and attractiveness may operate on a cross-system basis, differential power generally does not.

2. Personal Characteristics

In addition to individual differences in reaction, stemming from the social structure of the system, it is also necessary to consider possible influences of personality on susceptibility to influence pressures. In considering personality variables it should be noted at the outset that the literature in the area is both large and uneven. Investigators exploring the same personality variable, on a conceptual level, may use completely different measures; there has also been a general failure to differentiate among types of influence or types of responding. As a result, there are a good many conflicting findings, and genuine, cumulative research is scarce. There are at least two areas, however, where findings have been more reliable and provide a generally coherent picture. Both deserve attention:

a. Self-esteem

In a variety of studies, using different measures and different situations, the finding has consistently emerged that persons high in self-esteem are more resistant to influence attempts than those low in self-esteem (Asch, 1958; Blake, Helson and Mouton, 1956; Coleman, Blake, and Mouton, 1958; Hochbaum, 1954; London and Lim, 1964). This finding has held regardless of whether the dependent variable was actual change in attitudes about a topic, or in conformity to social pressure. The underlying rationale used by these various investigators to link low self-esteem to yielding has varied. Some have speculated that persons with low self-esteem feel inferior in comparison to others and thus are more inclined to distrust their own decisions. Others have felt that high self-esteem individuals tend to be egotistical and pay little attention to arguments which might threaten their position. While there is little to go on in estimating the validity of these various explanations, the finding seems to hold over a variety of situations.

When one turns to possible support for this finding in the education literature, a surprising fact emerges. In the one study that most closely deals with this issue, Lin, et al, (1966) related the following variables to teacher favorability toward school-adopted innovation:

(1) Feelings about themselves as good teachers

(2) Judgments of whether other teachers sought their opinions, and

(3) Feelings about whether they felt their principal thought they were good teachers.

As can be surmised, each of these variables is evaluatively loaded and could reasonably be said to tap self-esteem (or at least self-esteem as it derives from one's role as a teacher). However, when these variables were related to attitude toward innovation, in each case the correlations were positive and significant. Those teachers who felt better about themselves as teachers, who felt other teachers sought their opinions, and who felt their principal was positively disposed toward them were all more accepting of an idea which challenged their standard educational practices. Of course, these results may be subject to a response -- bias interpretation, and the data are correlational and thus subject to difficulties of interpretation. Nevertheless, the implications clearly run counter to the experimental lore of the field.

A possible explanation for this conflict in findings emerges, however, from studies by Cox and Bauer (1964) and Gergen and Bauer (1967). In these studies, using female subjects, a curvilinear relationship was found between self-esteem and susceptibility to social influence. Low self-esteem females seemed cantankerous and threatened by direct attempts at influencing them to change their minds. High self-esteem subjects reacted in the same way as subjects in the earlier research. Checking back on the traditional findings of a negative relationship between self-esteem and susceptibility, it is found that all significant results derive from male populations. Inasmuch as the teacher population used by Lin, et al, was predominantly female, and since a slight skew in the curvilinearity function would produce a low but positive relationship, we can begin to see how the latter correlations (all below .30) could have resulted.

Since self-esteem is an aspect of personality that can be readily altered through social feedback (cf. Gergen, 1965), and since it would seem to play such a significant role in the influence process, the variable could be of considerable interest in a study of innovation both for practical as well as theoretical reasons.

b. Need for social approval

The findings in this area are not unlike those existing in the self-esteem area in its most traditional sense. Thus, we shall not elaborate as we have above. Basically, Crowne and Marlowe (1964) have developed a rather ingenious paper and pencil device for measuring an individual's need for social approval. The measure has been validated in a sizable number of experimental studies. However, the major upshot of this line of research for present purposes is that need for approval has been found to be significantly related to susceptibility to influence in a variety of situations (Strickland and Crowne, 1962; Crowne and Marlowe, 1964; Crowne and Liverant, 1963; Miller, Doob, Butler and Marlowe, 1965). It seems quite clear that those who need approval and acceptance of others are more likely to give in to social pressure.

Unfortunately there is little relevant literature in the area of educational innovation related to this topic. In this sense, it would appear to be a worthwhile research endeavor at the present time. At the same time, it appears to be less desirable to explore need approval in this setting than self-esteem. Recent and unpublished findings in the need approval area suggest that the need is established at a very early age, and persists over long periods of time in the life of the individual. Thus, knowing that there was a relationship would not be of immense value. In effect, nothing could be done about it. You would simply know that some people in the system were more resistant and why, but this would allow you little additional leverage in the situation. Self-esteem, on the other hand, is susceptible to more dramatic fluctuations, and can be altered by a system. In a system where cohesiveness, mutual acceptance, and morale were high, it would be predicted that the general level of self-esteem would be higher. Such a system should hypothetically be more willing to accept innovation.

IV. THE RESISTANCE OF INFLUENCE: MAINTAINING STABILITY

We have had much to say about what kinds and under what circumstances communications will have the greatest influence over certain kinds of people. However, this is to say very little about the conditions under which people will be subject to counter-pressures. We may know that a communication from a high credibility source to a person in low self-esteem may have considerable effect. But does this effect withstand subsequent influence attempts made by others? What, then, are the conditions which cause persons to resist change? A number of factors loom as particularly germane:

A. Public Indentification

Research evidence seems clear and consistent that publicly committing oneself to a stand on an issue causes one to be more resistant to subsequent influence attempts (Deutsch and Gerard, 1955; Hovland, Cambell and Brock, 1957; Cohen, Brehm, and Fleming, 1958; Fisher, Rubenstein, and Freeman, 1956). Although there may be a number of processes at stake here, it seems most likely that the general reason for this being true is the cultural value placed on consistency and steadfastness. Once a person identifies himself with a cause, he risks great social opprobrium if he later embraces the opposite stand.

The one important implication for research on educational innovation is that the eliciting of vocal opinion in the early stages of the process may have the effect of solidification. If persons are caused to go on public record before all facts and arguments are heard, less realistic and informed decisions are likely to result. This reasoning also has interesting implications for predicting change in a given system. If there is a high degree of communication in a given educational system, positioning is likely to occur early in the process. Lin, _et al_ (1966), for example, found a significant relationship between the amount of social cohesiveness in a school system and the amount of time it took for teachers to become aware of an innovation. Further, the earlier they became aware, the earlier they discussed it with others. In a system with high communication frequency, the ultimate acceptance or rejection should be predictable at an early stage, significantly earlier than in a system where communication is less frequent.

B. Linkage to Values and Beliefs

Based on a number of theoretical positions (Carlson, 1956; Zajonc, 1960; Abelson and Rosenberg, 1958), each of which has substantial empirical support, there is good reason to believe that if a person's position on an issue is logically or emotionally linked to other values and beliefs which he holds dear, the position will be more recalcitrant to change. If a teacher, for instance, feels a given innovation supports his philosophy of education, his position on the issue would be more unchangeable than if no such link existed.

For anyone potentially interested in having an innovation adopted by a system, an optimum strategy would then seem to point out the way in which the innovation was consistent with policies or vested interests within the system. If the innovation appears inimical to these value or beliefe commitments, little change may occur. A good case in point from another area is the effect of the recent Moynihan report arguing for a policy change with respect to the status of the Negro family. Here the research and arguments were abundantly clear, and yet, as shown in Rainwater and Yancey's (1967) study, because the report was not consistent with the vested interests of a variety of policy making groups, it had virtually no effect.

Returning to the topic of innovation, there are interesting data of relevance in the Lin _et al_ study cited above. If we can assume that teachers have a value commitment or a vested interest in student benefit and student appreciation, the findings are particularly important. This investigation found that the single most important predictor of whether teachers favored a school-adopted innovation or any other change in their school, was whether they felt the students would benefit from the innovation or change. The correlations here were .60 and .55 respectively. The second most powerful predictor of teacher favorability to school-adopted innovation was their estimate of whether their students would like it. Of course, there are alternative interpretations of these findings, but they do lend support to the present argument.

C. Innoculation Theory

Because of its prominence in the field, mention should be made of McGuire's (1961, 1962, 1963) widely cited work on innoculation against attitude change. In a series of well controlled studies McGuire found, for example, that when a person simply receives support for his beliefs he is less resistant to change than if he has had to cope with a refutation. And, a forewarning of an attack on one's beliefs has the effect of immunizing against change. McGuire's research has generally revolved around the assumption that people cannot resist influence attempts when they have not had practice in defending their position, and when they simply assume that their beliefs are unassailable. It seems unprofitable to discuss this line of research in any detail here, however, since it has only remote applicability to the problem of innovations. McGuire's research has dealt only with cultural truisms and a wide gap is apparent between these issues and issues of innovation.

D. Individual Differences

There are a large number of individual difference dimensions which could conceivably be related to one's resistance to innovation. Vested interests of many kinds, for example, might cause one to reject this or that threat to the status quo. Perhaps the most significant inroads that can presently be made to this problem, however, may be generated from thinking in terms of individual differences which might operate across a wide range of innovation possibilities. That is, are there particular styles of behavior which predispose some persons to reject any or all attempts at altering the educational process? Here again the possibilities are manifold. However, one general and one specific dimension loom as particularly promising to consider.

1. Emotional dependency on the status quo

This general and at present vaguely defined dimension is much deserving of empirical elaboration. Behavioral scientists (e.g., Lorenz) have for years talked about the emotional investments that people make in their habitual patterns of behaving. Although little empirical support has as yet been generated for this proposition, it is not difficult to realize why this may be the case. In any new environment people set about attempting to behave functionally. If behaving functionally is not a life or death matter, which it often is, it at least implies that the person seeks gratification for his major needs or motives. Functional behavior is by definition behavior which is rewarded by the environment and thus gratifying to the individual. Continuous gratification yields emotional dependency. To prevent the behavior is to threaten the person's basic needs, etc. As Allport (1961) has attempted to show, such habitual patterns of behavior thus become rewarding in and of themselves. Thus, after a given action has been rewarded enough times, it may be perpetuated without benefit of additional reward. This is very similar to the long extinction periods which Skinner and his associates have shown is necessary to extinguish behavior which once was, but no longer is, functional in obtaining food in rat populations. The upshot is that a person may continue to have an emotional commitment to a given pattern of behavior even though the behavior itself may have little direct functional value in his life. Threats to the behavior are threats in spite of the fact that the behavior has little ostensible purpose.

Findings from the Lin et al (1966) study are at least consistent with this line of thinking. For example, they found a significant positive correlation between age and predisposition toward acceptance of change and innovation in the school. Atwood (1964) obtained essentially the same results in his study of new guidance techniques. In addition, the education of teachers serves to point out alternative means of acting functionally. It acts to free one from dependency on the past. Along these lines, a positive correlation was found in the Lin et al study between amount of education and favorability toward innovation. Fox and Lippitt (1964) obtained similar results in studying the effects of summer workshops on teacher innovation.

However, more definitive measures are much in need in the assessment of dependency. One immediate possibility would be attitude measures which assess one's satisfaction with his current methods of teaching or administration. Coupled with a measure of the amount of time such satisfaction had been experienced, one might be able to make fairly accurate predictions of reaction to innovation.

It is also important here to point out a distinction which can be made between the awareness of innovation as opposed to its acceptance. There may be important factors that relate or predict to one's sensitivity to new information. However, these same factors may be unrelated or even negatively related to one's acceptance of the innovation which the information concerns. Again in the Lin, et al study we find that the older teachers and the teachers who feel student reactions should not influence whether the school adopts the innovation, have earliest awareness of an innovation. However, it is precisely the younger and the more concerned with pupil reaction who are most favorable to the various innovations studied. The general conclusion seems warranted then, that if one were to use a model of innovation, based on process stages, it would be possible that different factors might be operative in producing effects at different stages.

2. Dogmatism

Ever since the publication of The Authoritarian Personality (Adorno, et al, 1950) there has been intense interest in developing and validating a personality measure which predicts to ethnocentrism. The most widely researched and most successful measure is the F scale, originally conceived of as tapping fascist tendencies, and later felt to be linked strongly with dogmatism. Several of the clusters of items appearing on the scale have considerable relevance to our present concerns. The clusters dealing with "conventionalism," "submission to authority," "anti-introspection" (opposed to the imaginative or subjective), and "cynicism" are particularly a propos. Indeed early research has suggested (cf. Frenkel-Brunswick, 1949; Rokeach, 1948) that people who have high F scores are rigid and intolerant of ambiguity or a change in set. Further research by Rokeach (1960) has expanded on this relationship and because Rokeach was able to account for a good deal of the variance in various tasks requiring re-thinking or looking anew at a task, the measures he has developed have subsequently been used to measure open vs. closed mindedness.

It thus comes as no great surprise that Lin and her colleagues (1966) found that dogmatism (as measured by a scale adopted from Rokeach) was significantly related in a population of teachers to their acceptance of innovation and change. The more dogmatic (less open-minded) were less willing to accept innovation. These findings would suggest that further validation here would be useful. Since the Lin study did not undertake multiple regression or partial correlation analysis, these statistical techniques could be employed as a valuable adjunct in future research.

V. THE INITIATION OF COMMUNICATION

Thus far our discussion has centered almost exclusively on factors which affect a person's reaction to the influence attempts of others. The individual has thus been considered a passive recipient, varyingly capable of being moded by the environment. However, influence attempts cannot be simply taken for granted. They must derive from a source. In effect, the source plays an equally, if not more important, role in the total process of communication and influence. The purpose of this section is to discuss a number of variables which may affect the individual's motivation to communicate with or to influence others with regard to issues of innovation.

Before discussing such factors, three minor issues deserve our preliminary attention. In the first place, our initial model of the communications system may have suggested that the education sub-system functions as a receptacle for innovations developed in other sub-systems. This would further imply that initiation of communication in the education sub-system would be insignificant and theoretically uninteresting. On the contrary, teachers may be constant sources of innovation. (cf. Barakat, 1966), and very frequently develop new practices about which those in other sub-systems are simply ignorant. In addition, even if members of the education sub-system were influenced from the outside, it is still a pertinent question as to who then attempts to influence others.

The second preliminary issue is whether we couldn't derive everything we needed to know about initiation of communication from a thorough discussion of reaction to influence attempts. That is, if we were able to predict perfectly the degree to which each person in the system would be influenced by a given communication, would we not also then be able to predict who would initiate further communication and what the content of the communication would be? After all, those who are most influenced should hold the opinion most strongly, and thus be more likely to engage in subsequent attempts to influence others. A discussion of the relationship between attitude intensity and the initiation of communication will be reserved for later. Suffice it to say for now that partly because of this implicit assumption there are far fewer relevant findings in the area of initiation than there are in the area of attitude change. This is lamentable, inasmuch as it seems quite clear that the initiation of communication may depend on a good many factors other than the extremity of belief. As research on racial integration has shown, a good many people may hold equally liberal vaues, but not all these will be equally willing to participate in public demonstrations. The following discussion will treat a number of factors which seem most relevant to the process of educational innovation.

A. Role Prescriptions

Although the concept of social role has been used in various and sundry ways, for present purposes we may focus on its use in referring to stable and reliable patterns of behavior associated with the occupancy of a formal position or status within society. Thus we may speak of behavior which we might normally expect to be in keeping with the role of salesman, soldier, or professor, and can readily recognize behavior which would not be in keeping with such roles. In effect, there is a basic set of prescriptions as to how one should conduct himself with respect to his status or occupational position.

It follows from this line of reasoning that certain roles in the educational system may have prescriptions which include the initiation of communication, and more specifically, communication dealing with prospective innovations. That is, are there certain positions within the sub-system which carry with them requisites for initiating communication regarding innovation? Certainly we might expect the school principal and his staff of teachers to be more active than perhaps school board members or students.

As yet, there appears to be no good evidence on this topic, and it looms as one of potentially great importance. If one could ascertain what positions or roles typically carried with them, from the incumbent's point of view, strong requisites for communication regarding innovation, one could begin to specify the major sources of influence in the system. Such individuals might be considered "prime movers;" and if one knew, in addition, their views on a given innovation, one might be in a better position to predict the final dispostion of a given innovation.

However useful knowledge of generalized role prescriptions would be, there are supplementary variables to consider which would allow for much greater precision in specification. Although there may be generalized role prescriptions, there are also likely to be latitudes of variation within which different individuals may fall. There is a general expectation, for instance, that principals should render advice to teachers on professional problems. However, while some principals may involve themselves deeply in such activities, others may devote very little time. What is needed, then, is some idea of what individuals holding a given position might be expected to be high vs. low initiators. The following factors seem to be particularly relevant.

a. Role clarity and consensus

The notion of role clarity has been used to refer to the person's perception of the degree of explicitness provided by others concerning appropriate behavior for a given role (cf. Wardwell, 1952; Schwartz, 1957). With respect to issues of innovation this concept is particularly important, inasmuch as the novel aspect of innovation may mean that there is little clarity with respect to what one should do about various innovations. Whereas it may be quite clear that teachers would feel compelled to communicate on the possibility of adopting team teaching methods, it is not so clear as to what role a superintendent should play here. For another type of innovation, it may be the principal who will feel most compelled by virtue of his position to speak out. It is possible that here teachers might be quite puzzled as to the appropriate behavior. This type of role confusion in the case of innovation has been documented by Miles (1964) and Barton and Wilder (1964).

A highly related concept here is role consensus, referring to the degree to which others agree as to the type of behavior one should adopt as a function of his role. Although a role prescription has a certain degree of clarity for an individual, various others who are important to him might not agree as to whether it was appropriate. Their degree of agreement should have a great deal to do with whether he actually adopts the prescribed behavior. This problem mushrooms, however, when one considers that role consensus itself may vary as a function of various aspects of the social environment.

In perhaps the most extensive analysis of any social role, Gross, Mason, and McEachern (1958) found that the degree of consensus felt by school superintendents concerning their role was dependent on the content of the specific role, the similarity of superintendents with those having expectations, and the size of the educational organization in which the superintendent was employed. Thomas (1959), Hanson (1962), and Julian (1962) have continued this line of investigation by concentrating on additional variables such as amount of communication, amount of training, and the relationship of the person to the positions. However, in the first stage of research on role prescriptions and communication, it would not seem necessary to elaborate on the causal network in this way.

b. Motivation

One obvious factor which should affect the degree to which an incumbant behaves according to prescription is the incumbant's motivational state. More specifically, if he aspires, for whatever reason, to fill his role successfully, he should be more likely to conform to prescription -- and in this case, initiate more communication related to his role. Support for this general notion comes from the Gross, et al (1958) study cited above. Here it was found that the motivation of school board members was strongly related to their conformity to professional role expectations. Here the focus was on type of motivation as opposed to intensity. Both of these aspects of motivation could usefully be considered in future research in the area.

B. Belief Strength

The argument was made above that one's actions on behalf of a specific issue would bear a strong relationship with the intensity or strength of his beliefs. In this way, knowing the efficacy of various communications to which a person had been exposed could provide a rough estimate of his beliefs, and thus a rough estimate of the degree to which he would initiate communication. This process can be short-circuited, however, and an ivestigator could tap belief strength more directly and without recourse to communications to which the person had been exposed. There is good reason for taking this more direct approach if one is interested in predicting amount of initiation. Belief strength will undoubtedly be a function of a number of factors unrelated to preceding communications. For example, a teacher may feel that his methods of teaching mathematics are not proving successful, and be more than anxious to try out new procedures -- regardless of the communication received.

Unfortunately there is no good evidence relating belief strength to the initiation of communication. However, there are strong theoretical arguments which would lead one to anticipate such a relationship. Donald Campbell, a major theorist in the area, has dealt with attitude strength in terms of the strength of behavioral dispositions (1963). The stronger the behavioral disposition the more likely it is to manifest itself in overt or public activity. In effect, thresholds for action are lower and environmental hurdles are less effective when the strength of the disposition is high. The widely known Guttman (1944) attitude scaling device is also based on such a principle. The more behavior to which one is willing to commit oneself in behalf of a given issue, the more intense or stronger the attitude is said to be. The upshot of this discussion is that in attempting to deal with the initiation of communication, future research could well focus on belief strength as a predictor variable.

C. Innovation Relevance

Another strong predictor of motivation may be the relevance of a given innovation to the individual. In this case relevance has much in common with the concepts of "ego-involvement" (Allport, 1961), "issue-involvement" (Jennings, 1963), and "salience" (Danzger, 1964). For present purposes we might say that an innovation will be relevant to the extent that its implementation has the capacity to modify the current behavior patterns of an individual. An innovation may entail a given behavior, or modify it; curtailment or modification may serve to thwart a person's values or goals, or it may enhance his purposes. In proportion to the amount of behavior change involved and the degree of frustration or enhancement that may result, the innovation can be said to be relevant. The greater the relevancy, it may be conjectured, the greater the motivation of the person to inluence others and enlist their support.

While there is little in the way of current evidence relevant to these speculations, such evidence should be relatively easy to obtain. Systematic questions concerning the ways in which a given innovation might affect a given respondent, and of the intensity of the respondent's attitude regarding these changes should yield numerical data which could be utilized to predict initiation of communication. And too, the relevancy dimension is hardly limited to teachers alone. Administrators in various echelons will also be affected in varying degrees by differing innovations. Measures, in such a case, would also do well to take into account the effects of the innovations on persons who "matter" to the individual involved. While the behavior of a principal may be little affected by a given innovation, the wrath of his teaching staff would have great relevance for him.

D. Personal Factors

Just as there are a number of individual differences which would cause one to be more or less susceptible to influence, it is reasonable to assume that such factors may also play an important role in affecting one's attempts to influence others. The classic way to approach this problem would be through an assessment of the power structure of a given system. That is, if one could specify who the system influentials were likely to be in educational systems, one might then draw conclusions as to where the sources of influence would be for a given innovation. However, in the present case, there are good reasons for not adopting this stance, and they deserve brief elaboration.

Perhaps the most extensive model of power (in this case termed "leverage") in social systems has been developed by Gergen (in press). The model is more extensive in the sense that while most studies of power structure are uni-directional (assuming that individuals can be scaled along a single continuum from more to less influential) the Gergen model takes into account several dimensions simultaneously. These dimensions are access to resources (of various specific kinds), personal efficacy (related to the person's popularity or charisma), and issue relevancy (which assumes that people do not generally wield influence about issues in which they are not involved). The major reason in not adapting this model for present purposes is that the factors or variables thus far discussed in the present paper obviate the necessity for the model. We have already dealt with the effects of issue relevancy in the above discussion of innovation relevance. In the leverage model, relevance has been looked upon as the motivator and thus bears a multiplicative relationship to amount of resources and personal efficacy. In the present case, it also serves as a motivator. However, the latter aspects would operate to enhance the effects of the motivated attempt to influence. They, themselves, would not markedly affect the person's desire to speak out. In this moderator role, both the variable of resources and personal efficacy have been covered elsewhere in this paper. Resources could easily be subsumed under the discussion of status differences between communicator and recipient; personal efficacy, on the other hand, is covered by the credibility and attractiveness dimension in the discussion of communicator characteristics. Thus, the introduction of a power structure model seems somewhat superfluous.

Not in the least superfluous, however, are personality variables which may affect activism. For example, Lasswell (1948), Eulau, Eldersveld, and Janowitz (1956), and Lane (1959), have all considered possible factors which may affect the degree to which a person participates or attempts to exert action in the political arena. In the same way, there may be styles of behavior which would have much to do with the amount of communication a person would initiate, and more specifically, the extent of his activity on behalf or in opposition to an innovation issue. In this area there is virtually no direct evidence. However, drawing from related literature, there at least several variables that seem well worth exploring.

a. Internal vs. external control

One of the more subtle and yet intriguing of the personality variables that has been related to activism is the internal vs. external control variable. The dimension derives primarily from Rotter's work on social learning, and calls attention to where the person locates the cause of what happens to him. While some individuals are prone to attribute what happens to them to their own behavior or characteristics, others attribute the course of their lives to forces outside their control. The former are said to see themselves as having internal control, while the latter see control as emanating from external forces. Without going into the lengthy learning theory derivation for the variable (cf. Rotter, 1954), suffice it to say that the 23 item scale used to tap this dimension has been found to reliably predict achievement striving, conformity, and risk taking behavior. More directly to the point Gore and Rotter (1963) found the scale to be an important predictor of commitment to social action within a Negro population. Thus, when individuals see themselves as controlling their future they are more likely to attempt to alter social conditions than when they feel their future is beyond their control. There is good reason to believe that such a variable would also have some predictive power in the area of educational innovation. It seems quite reasonable to expect that individuals characterized by a high degree of internal control will be more likely to attempt to alter various aspects of the educational system; external controllers should be more likely to view change as a function of broad and unmodifiable forces and thus see their participation as relatively valueless.

b. Need achievement

McClelland and his associates (1953, 1961) have devoted a good deal of attention to measuring and assessing the correlates of person's needs to achieve. While there is no direct evidence relating achievement motivation to initiation of communication connected with innovation, there are adequate grounds for anticipating such a relationship. While high need achievers are only moderate risk takers, they have been found to be most active in altering the status quo in developing countries. Such action on their part should particularly be expected if the competition is keen or the circumstance such that they may receive personal gain. The major reservation one might have about making a large research investment in achievement motivation and innovation in school systems is that the measure and correlates have been found to be far more reliable in male than female populations. Inasmuch as women are found in great abundance in the educational sub-system, using a measure inadequate for predicting female behavior would seem questionable.

c. Power motivation

Innovations, if controversial enough, can easily become rallying points for the enthusiasms of entire groups of people. In turn, to be effective, groups usually require some form of leadership. In this sense, innovations may contribute to a context in which motivation for personal power may be stimulated and encouraged to flourish. It might be reasoned, then that among those who are highly active in supporting or opposing a given innovation, a disproportionately larger group of people will be found who are motivated by considerations of power.

The major problem with using this particular dimension of motivation is that at present there are no measures which are both convenient and reliable. A very interesting alternative, however, is suggested by Lasswell (1954) in his classic study of political motivation. As a result of his research he concludes that power is used primarily as a defense to which individuals turn in the hope of overcoming low estimates of self. Lane's (1959) treatise on political activity amplifies Lasswell's argument. As Lane points out, "men generally seek to defend and improve their self-esteem through political activity," (1959, p. 102). It would thus seem that since self-esteem is easily and more reliably measured, and since there is good reason to believe that self-esteem should be related to reaction to social influence attempts, it would be quite profitable to use the same measure as a measure for power needs (one step removed) and relate it to initiation of communication.

VI. SOCIAL STRUCTURE, COMMUNICATION, AND INFLUENCE

Thus far the analysis of communication and influence has been derived from a social psychological perspective. Implicity the assumption has been that there is an equiprobably chance of any member within or between systems communicating with each other. This assumption, although not crucial to the above analysis, is of course mistaken. As a result of the formal structure of organization, communication patterns are markedly altered. We know, for example, that in most organizations communication is more frequent among peers than between levels of the organization. Further, communication upwards in the hierarchy is more difficult and less efficient than communication downward. It might also be speculated that communication within a sub-system will be more frequent than communication across different sub-systems. Since the amount of interpersonal influence which takes place bears a significant relationship to the amount of communication, knowledge of formal structure should also tell us much about normative channels of influence in educational settings. This emphasis does not mitigate against the arguments made earlier in the paper. Factors enhancing the effectiveness of a given communication should operate regardless of the particular organizational structure involved. In the present case, it is simply necessary to call attention to social structure variables as they affect the process of influence.

The present focus could potentially modify a number of remarks made above concerning influential individuals. We have made extensive use of the concept of status above, and have generally linked it with role in the formal system. However, it is also possible that the same structural factors which produce communication patterns also engender status differences among individuals. The classic studies here are those of Bavelas (1948) and Leavitt (1951), who have shown that altering the communication pattern in a group can affect the degree to which an individual becomes influential in a group. If, for example, A and B were each allowed to communicate with C, but not to each other, C would be more likely to develop the capacity to set group goals than either A or B. This type of thinking raises intriquing questions for comparative systems research, but is not particularly helpful when dealing on an individual basis. It may be, for example, that due to the communications arrangements, a principal would have far more influence over his teachers than would the superintendent. This type of issue is well worth exploring in future research on systems. In the present context it merely needs to be noted, and kept in mind as research issues are developed.

VII. SUMMARY

In this paper we began with a simple model of communications in a social system -- the system of education. After spelling out the cast of relevant actors in this system, and those who might communicate into this system from without, we took a sharper look at the process of social influence. We first looked at a variety of factors which might cause any potentially influential communication to have more or less impact on the recipient. We then turned our attention to variables which might cause some persons to be more or less resistant to change. The coin was then turned, and we asked about what might cause some persons to become more engaged in the process of change, that is, why they would choose to influence others. Throughout the analysis, the theme of educational innovation was focal.

It should finally be noted that the foregoing analysis has concentrated on simple effects. That is, we have attempted to delineate a range of separable factors. The model has implicitly assumed that several factors all operating toward the same end should summate or be additive. This assumption is clearly a debatable one and subject to empirical test. The possibility for more complex sets of interactions among variables certainly exists. However, a consideration of the many possible combinations of variables is beyond the scope of this paper. Before concentrating on complex combinations, experimental confrontation with simple effects seems a necessary and important step.

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APPENDIX H

A MATHEMATICAL DESCRIPTION OF THE MODEL

This appendix states the model, and hypotheses about the model, in mathematical language. This appendix should be considered to be an integral part of Chapter III.

The model

Two mathematical statements can describe in a general way the relationships among the variables (mechanisms) in the model. The first statement is about the adoption process.

(1) $p = f\ (I,S)$

p = innovation adoption performance of the school district

I = initiating mechanisms

S = sustaining mechansims

Statement 1 indicates that the school district's performance (tendency, willingness) in adopting innovations is a function of both the initiating and sustaining mechansims. Examples of the several variables (I, S, and p) have been given in Chapter III.

The second statement in the model is about the effect of innovation adoption upon the school district's overall educational performance.

(2) $P = f\ (p,F)$

P = overall educational performance of the school district

F = feedback transmissions about overall educational performance (P)

p = innovation adoption performance (see Statement 1)

Statement 2 says that the school district's overall educational performance is a function of its innovation adoption performance (p) and performance feedback transmissions (F) about overall performance. There can be no performance feedback transmissions if there are no "measures" of the school district's overall performance. Under these circumstances, $F = 0$. There can be no performance feedback transmissions if there are no communication nets (S) carrying information about education in the community. Under these circumstances, a particular sustaining mechanism -- the presence of a communication net -- is absent ($S_n = 0$).

If Statements 1 and 2 are true, it follows that overall educational performance is a function of initiating, sustaining, and feedback mechanisms.

(3) $P = f\ (I,S,F)$

This is the approximate form in which the model was originally conceived (Ross, 1967). It is possible to think of changes in overall educational performance of a school district as an innovation adoption (I, S, or p) and assessment-feedback (F) cycle.

Our conception of the model is that the absence of initiating mechanisms of any kind, or the absence of sustaining mechanisms of any kind, results in no innovation adoption. These mechanisms form the climate for innovation adoption.

(4) $c_p = I_i \cdot S_j$

c_p = climate for innovation adoption

I_i = Any initiating mechanism, i

S_j = any sustaining mechanism, j

Statement 4 says that the climate for innovation adoption is modeled by the arithmetic product of a measure of any initiating mechanism and any sustaining mechanism. Choosing the product (I x S) to model this relationship means that when $S = 0$ or when $I = 0$, then no adoption will occur, a consequence which conforms to our thoughts about the model. This statement requires that our measures of I and S have very sophisticated (ratio scale) properties, but that is a technical consideration which we will mention and then forget in the scope of this study.

I and S describe adoption performance.

If the climate for innovation adoption (c_p) is related to adoption performance (p), then our model of the innovation adoption processes is -- in part, at least -- supported. This thought forms the basis for our first test of the model.

(5) Hypothesis 1: $r_{IS \cdot p_x} > 0$

$r_{IS \cdot p_x}$ = the correlation between the climate for adoption ($c_{p_x} = I_i \cdot S_j$) and innovation adoption performance (p_x) for innovation x

Statement 5 says that the correlation between the climate for innovation adoption (c_p) and actual adoption performance (p) will be greater than zero.

A combination of I and S is necessary to get an adoption.

Our thoughts about the innovation processes tell us that initiating mechanisms and sustaining mechanisms must occur in some combination greater than a threshold value before an adoption will occur. If this is true, the combination of I_i and S_j should be more highly related to adoption performance (p) than either I_i or S_j alone.

(6) Hypothesis 2a: $r_{I_iS_j \cdot p_x} > r_{I_i \cdot p_x}$

(7) Hypothesis 2b: $r_{I_iS_j \cdot p_x} > r_{S_i \cdot p_x}$

$r_{I_i \cdot p_x}$ = correlation of an initiating mechanism i with adoption performance (p_x) for Innovation x.

$r_{S_j \cdot p_x}$ = correlation of a sustaining mechanism j with adoption performance (p_x) for Innovation x.

Statements 6 and 7 form the basis for a second test of the model.

Some I's are more effective than other I's, and some S's are more effective than other S's.

We state, in our formulation of the descriptions of the adoption processes, that some initiating mechanisms are likely to be more effective than others in enhancing the adoption climate, and that different sustaining mechanisms also will have different leverage on the adoption climate. These can be stated as hypotheses.

(8) Hypothesis 3: $r_{I_i \cdot c_{p_x}} > r_{I_j \cdot c_{p_x}}$

(9) Hypothesis 4: $r_{S_i \cdot c_{p_x}} > r_{S_j \cdot c_{p_x}}$

These statements simply say that one can find some initiating mechanism (I_i) which is more highly correlated with adoption climate (c_{p_x}) for Innovation x than is some other initiating mechanism (I_j), and similarly for sustaining mechanisms. Our tests of these hypotheses substitute P_x for c_{p_x} so that the tests avoid sub-correlation.

I's shape the particular adoption.

We think that initiating mechanisms are the architecting forces for a specific adoption, whereas the sustaining mechanisms have little to do with the specific characteristics of the adoption. If initiating mechanisms are, indeed, the architecting forces, their appropriateness for a particular adoption should be more pronounced than is the appropriateness of sustaining mechanisms.

(10) Hypothesis 5: $r_{p_x \cdot I_x} - r_{p_x \cdot I_y} > r_{p_x \cdot S_x} - r_{p_x \cdot S_y}$

p_x = adoption performance for Innovation x, such as team teaching

I_x = initiating mechanisms for Innovation x

I_y = initiating mechanisms for Innovation y, such as professional staff development

and so on.

The hypothesis in Statement 10 tests the efficacy of initiating mechanisms for one innovation (x) in supporting innovation adoption for another type of innovation (y) when compared with the differential support offered by the sustaining mechanisms.

S's have more effect on adoption performance than I's.

We also think that the sustaining mechanisms in general are likely to be more important in effecting innovation adoptions than are the initiating mechanisms. ("The absence of sustaining mechanisms is likely to be the more commonly experienced barrier." See Chapter III.)

(11) Hypothesis 6: $r_{p_x \cdot S_x} > r_{p_x \cdot I_x}$

A combination of I, S, and F is related to overall performance; Performance feedback transmissions augment adoption performance in improving overall performance.

The part of the model (Statement 2) relating innovation adoption performance (p) to overall educational performance (P) is of significant practical importance -- if it is valid. It, too, needs to be tested. Assuming measures of overall educational performance of one type or another can be obtained, our ideas suggest that overall performance will be higher when high innovation adoption performance (p) and relevant performance feedback transmissions (F) have been available to a district. Failing the feedback information, overall performance usually should be lower.

(12) Hypothesis 7: $r_{P_x \cdot p_x F_x} > 0$

(13) Hypothesis 8: $r_{P_x \cdot p_x F_x} > r_{P_x \cdot p_x}$

P_x = overall educational performance in aspects of the educational program affected, or nominally affected, by Innovation x.

p_x = innovation adoption performance for Innovation x.

F_x = feedback of information about changes in overall educational performance (ΔP_x)

Statement 12 presents the hypothesis that innovation adoption performance and performance feedback transmissions, when coupled (p x F), are correlated with overall performance. This is a bare-minimum test of Statement 2. Statement 13 is a more difficult test of Statement 2, determining if feedback about overall performance does aid improvement in overall performance as contrasted with simply innovating without the presence of feedback information. An hypothesis testing all elements and relationships in the entire model is given in Statement 14.

(14) Hypothesis 9: $r_{p_x \cdot S_x I_x F_x} > r_{p_x \cdot S_x I_x}$

The multiplicative combination of measures of I, S, and F (I x S x F) is intended here. With this hypothesis we stopped our formulation of tests.

It will be clear to the critical reviewer that other statements testing the model can be formulated, and that the basic concepts tested by these hypotheses probably can be tested by other approaches.

Chapter IV examines the data supporting and denying the model.

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stimulating innovation adoption
theory and mathematical model of innovation adoption
State Dept. and federal roles in innovation adoption in school districts
dissemination of innovations in education
factors initiating, sustaining, and controlling innovation life
priorities for stimulating innovation adoptions in school districts
models for innovation adoption
school district performance
IDENTIFIERS:
team teaching
professional staff development
ABSTRACT:

The processes by which educational innovations are adopted in public school districts were studied for the purpose of better understanding what may be done by local school districts and by agencies outside the local school district to facilitate innovation adoption. Several descriptions of adoption processes which appear in the research literature were found to be inadequate as general models of the adoption process, although each was appropriate in a portion of the adoptions observed in this study. A general model describing innovation adoption was developed which features factors initiating, sustaining, and controlling the life of a newly adopted change in educational practice in the district. Tests of the new model look promising, but must be regarded as very preliminary because they are derived from observations in only eight school districts. The implications of the model for stimulating innovation adoptions are developed, both for local school districts and for agencies outside the local district such as state departments of education, regional educational laboratories, federal agencies, universities, publishers, and others.

BR-6-1500
PA-24

A Model for Innovation Adoption In Public School Districts

Appendix G

Questionnaires

EA 001 628 Appendix G
ED022262

Arthur D. Little, Inc.

Final Report
Contract No. OEC-1-7-061500-0328

A MODEL FOR INNOVATION ADOPTION IN PUBLIC SCHOOL DISTRICTS:

Research on the Characteristics of Selected School Systems as they Relate to Needs for, Appraisal, Acceptance, and Use of Innovations

APPENDIX G: QUESTIONNAIRES

ARTHUR D. LITTLE, INC.
CAMBRIDGE, MASSACHUSETTS 02140

March 1968

The research reported herein was performed pursuant to a contract with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

APPENDIX G

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INTRODUCTION

The questionnaires completed by members of the study team who visited the school districts and by residents in the school districts are presented in this Appendix. These questionnaires were used in the study which produced the report A Model for Innovation Adoption in Public School Districts dated March 1968 and prepared for the United States Department of Health Education and Welfare by Arthur D. Little, Inc.

This appendix contains five questionnaires. Two of the questionnaires, Forms 4 and 5, were completed by residents in the school districts visited by the study team. Three of the questionnaires, Forms 7, 8, and 9, were completed by members of the study team.

> Form 4, General Questionnaire. This questionnaire asks the resident of the school district to describe himself and his background and role in education as well as some of his recent activities in the community and in support of his own professional development.
>
> Form 5, Study of Innovation in Education: Professional Staff Development. Section One of Form 5 asks the resident in the school district to name people who fill a variety of educational roles and describe how they influence him in his own position with respect to professional staff development programs. Section Two asks the resident to describe his own role in recent innovations in the district in professional staff development programs. Section Three asks the resident to rate the amount of influence various activities have had on the formation and development of his own position with respect to innovations in professional staff development.
>
> Form 6, Study of Innovation in Education: Team Teaching. Form 6 is not presented in this Appendix. It is identical to Form 5, except that it has the phrase "team teaching" appearing wherever the phrase "professional staff development" appears in Form 5.
>
> Form 7, Interviewer Description of Interview and Innovation. After each interview, the visitor and member of the study team completed Form 7. It describes the resident's role in education in the school district,

indicates the content of the interview, and describes the particular innovation adoption which was discussed during the interview.

Form 8, Interviewer Description of Community and School System. The visitor and member of the study team completed this form after all interviews and notes and Form 7 questionnaires had been completed. This questionnaire describes the community and its participation in educational affairs.

Form 9, Summary Ratings of Each School District by Each Interviewer. The visitor and study team member completed Form 9 after all interviews and notes and Form 7 questionnaires had been completed. The visitor describes educational developments in general and the developments with respect to team teaching and professional staff development innovations in particular as he records his ratings on the rating scales in Form 9.

The questionnaire pages are shown in reduced size on the following pages. In addition, marginal notes describe three pieces of information beside each of the questions which were included in measures of I, S, F, p, and P variables used in this study. This information in the margins, combined with the information given in Appendix E, permits the interested reader to reproduce all of the measures used in Chapter IV.

Marginal notations on the questionnaires are made under three headings. They are (1) "Key", an alphabetic code for the measure in which the response to that question was used, (2) "Mechanism", an alphabetic code indicating which general class of variable the authors judge the question to measure, and (3) "Cut Score", the two numeric code values for the respondent's answer between which lies the "median" respondents' answer or the boundary which divides the frequency distribution of answers into upper and lower halves as nearly as possible. For example, if the "cut score" is noted as 4/5, responses coded 4 and lower fall into the lower half of all responses, and responses coded 5 and higher fall into the upper half of all responses. This piece of technical information is important to those who may wish to reproduce this work in a new study.

The information noted in the "Key", "Mechanism", and "Cut Score" columns on the following pages is essential to tying the individual questions and coded responses in the questionnaires to the measures as described in Appendix E and to the measures as described in Chapter IV.

APPENDIX G

QUESTIONNAIRES

FORM 4 - - General Questionnaire

ARTHUR D. LITTLE, INC.

Cambridge, Massachusetts

STUDY OF INNOVATION IN EDUCATION

How this data will be used.

All information you give us which will permit identification of you or members of your household or family will be held in strict confidence. The information will be used only by persons engaged in this study and will not be disclosed or released to others for any purposes.

Name ______________________________

City, State ________________________

Date ______________________________

General

FORM 4 -- General Questionnaire

MY ROLE IN EDUCATION

INSTRUCTIONS

Below you will find a list of characteristics which may apply in varying degrees to you in your role in education. In each case rate the degree to which the characteristic describes you. Be sure to mark your judgment beside each characteristic, using any of the boxes from 1 (not at all descriptive) to 7 (unusually appropriate as a description) to indicate how well the characteristic describes your role in education. Make your mark like this: ☒

This is unusually appropriate as a description of my role in education → 7

This is not at all descriptive of my role in education → 1

Key	Mechanism	Cut Score		1	2	3	4	5	6	7
XR	P	5/6	1. Well prepared for my job	☐	☐	☐	☐	☐	☐	☐
XR	P	5/6	2. Highly competent in carrying out my job	☐	☐	☐	☐	☐	☐	☐
XR	P	2/1	3. Not particularly liked by those with whom I work	☐	☐	☐	☐	☐	☐	☐
				1	2	3	4	5	6	7
XR	P	6/7	4. Justifiably proud of my work	☐	☐	☐	☐	☐	☐	☐
XR	P	3/2	5. Ineffective in communicating about professional matters	☐	☐	☐	☐	☐	☐	☐
XR	P	5/6	6. Respected by my peers	☐	☐	☐	☐	☐	☐	☐
XR	P	2/1	7. Not particularly industrious	☐	☐	☐	☐	☐	☐	☐
				1	2	3	4	5	6	7
XR	P	6/7	8. Highly motivated to do a good job	☐	☐	☐	☐	☐	☐	☐
XR	P	2/1	9. Incapable of making my own decisions	☐	☐	☐	☐	☐	☐	☐
XR	P	2/1	10. Not particularly respected by my superiors	☐	☐	☐	☐	☐	☐	☐

FORM 4 -- General Questionnaire

BIOGRAPHICAL QUESTIONNAIRE

INSTRUCTIONS:

Following are some questions about your background and your current activities. Read each question and mark the one answer which best describes you.

1. My sex is

   1 ☐ male

   0 ☐ female

2. My age is

   1 ☐ 25 or younger

   2 ☐ 26-35

   3 ☐ 36-45

   4 ☐ 46-55

   5 ☐ 56-65

   6 ☐ 66 or older

3. My present marital status is

   1 ☐ married, and living with spouse

   0 ☐ no spouse, or not living with spouse

4. My present occupation is

   1 ☐ educator

   2 ☐ non-educator

5. At present, my major income comes from employment in

   6 ☐ education

   5 ☐ government

   4 ☐ professional services

   3 ☐ business, industry, trade

   2 ☐ I am a housewife

   1 ☐ other

6. At one time or another in my life, I

   3 ☐ have been employed (received income) as an educator (teacher, administrator, professional staff member, educational researcher, textbook author)

   2 ☐ have been employed (received income) in education, but not as an educator (architect, clerical worker, maintenance worker, contractor, publisher)

   1 ☐ have never been employed (never received income) in education.

7. I have been a resident of this town

   1 ☐ less than 1 year

   2 ☐ 1 year or more, but less than 3 years

   3 ☐ 3 years or more, but less than 6 years

   4 ☐ 6 years or more, but less than 10 years

   5 ☐ 10 years or more, but not all my life

   6 ☐ for my lifetime except for brief periods such as for military service or college

8. The highest educational level I have completed is

   0 ☐ 8th grade or less

   1 ☐ some high school, but not a high school graduate

   2 ☐ high school graduate

   3 ☐ study beyond high school, but no Associate degree or Bachelor's degree

   4 ☐ an Associate degree

   5 ☐ a Bachelor's degree

   6 ☐ some graduate study, but no graduate degree

   7 ☐ a Master's degree

   8 ☐ a Doctorate

   9 ☐ post-doctoral study

Key Mechanism Cut Score

FORM 4 -- General Questionnaire

CR I 4/5 9. The last time I attended a course or workshop in a college or university was

- 5 ☐ less than one year ago
- 4 ☐ 1 year or more ago, but less than 3 years ago
- 3 ☐ 3 years or more ago, but less than 6 years ago
- 2 ☐ 6 years or more ago, but less than 10 years ago
- 1 ☐ 10 years or more ago
- 0 ☐ I have never attended a course or workshop in a college or university

10. My children

- 2 ☐ are now enrolled in public schools in our town
- 1 ☐ were enrolled in public schools in our town at one time, but are not enrolled now
- 0 ☐ have never been enrolled in public schools in our town (OR, I have no children).

MR S 0/1 11. I

- 2 ☐ now hold elected office in our local (this town) state, or national government
- 1 ☐ at one time held, but do not now hold, elected office in our local (this town), state, or national government
- 0 ☐ have never held elected office in our local (this town), state, or national government.

MR S 0/1 12. I

- 2 ☐ now hold elected office in volunteer organizations in our town
- 1 ☐ have held, but do not now hold, elected office in volunteer organizations in our town
- 0 ☐ have never held elected office in volunteer organizations in our town

Key Mechanism Cut Score

FORM 4 - - General Questionnaire

BR I 0/1 13. At the present time, I

1 ☐ am a member of one or more professional organizations in education

0 ☐ am not a member of a professional organization in education

14. At the present time, I

1 ☐ am a member of one or more professional organizations other than an organization for educators

0 ☐ am not a member of a professional organization other than an organization for educators.

AR I 2/3 15. I subscribe to

4 ☐ 6 or more professional journals in education

3 ☐ 4 or 5 professional journals in education

2 ☐ 2 or 3 professional journals in education

1 ☐ 1 professional journal in education

0 ☐ no professional journals in education

AR I 2/3 16. I regularly scan and read from

4 ☐ 6 or more professional journals in education

3 ☐ 4 or 5 professional journals in education

2 ☐ 2 or 3 professional journals in education

1 ☐ 1 professional journal in education

0 ☐ no professional journals in education

FORM 4 -- General Questionnaire

Key	Mechanism	Cut Score	
AR	I	3/4	17. I estimate that I read each month 4 ☐ 15 or more articles from newspapers and magazines (not professional journals) about education 3 ☐ 10 to 14 articles from newspapers and magazines (not professional journals) about education 2 ☐ 5 to 9 articles from newspapers and magazines (not professional journals) about education 1 ☐ 1 to 4 articles from newspapers and magazines (not professional journals) about education 0 ☐ no articles from newspapers and magazines (not professional journals) about education
AR	I	2/3	18. I estimate that in a year I read 4 ☐ 12 or more books about education 3 ☐ 6 to 11 books about education 2 ☐ 3 to 5 books about education 1 ☐ 1 or 2 books about education 0 ☐ no books about education
MR	S	0/1	19. At the present time, I 1 ☐ am a member of a church, synagogue, or other religious organization in our town 0 ☐ am not a member of a church, synagogue, or other religious organization in our town
MR	S	1/2	20. At the present time, I am at least a moderately active member (attend meetings more than once a year) of 3 ☐ 4 or more volunteer* organizations in our town, not counting religious organizations 2 ☐ 2 or 3 volunteer* organizations in our town, not counting religious organizations 1 ☐ 1 volunteer* organization in our town, not counting religious organizations 0 ☐ no volunteer* organizations in our town, excluding for the moment religious organizations

*"Volunteer" organization includes civic, social, hobby, political, and service organizations.

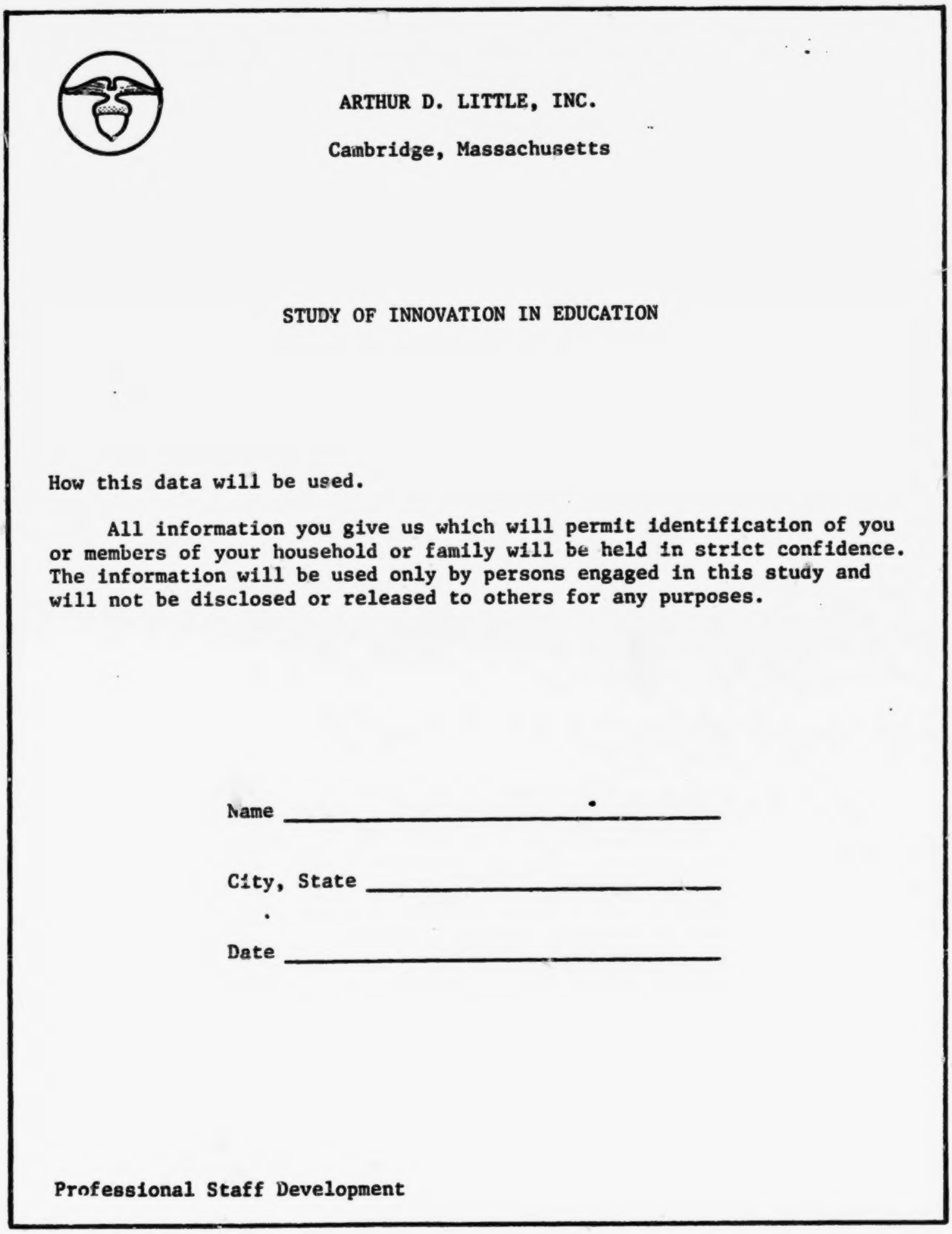
FORM 4 -- General Questionnaire

Key	Mechanism	Cut Score	Item
			21. My household's (for example, husband and wife) total income last year was 1 ☐ $3,000 or less 2 ☐ $3,001 to $5,000 3 ☐ $5,001 to $8,000 4 ☐ $8,001 to $12,000 5 ☐ $12,001 to $17,000 6 ☐ $17,001 or more
MR	S	4/5	22. My spouse has been a resident of this town 0 ☐ I have no spouse, or my spouse does not reside in this town 1 ☐ less than 1 year 2 ☐ 1 year or more, but less than 3 years 3 ☐ 3 years or more, but less than 6 years 4 ☐ 6 years or more, but less than 10 years 5 ☐ 10 years or more, but not for a lifetime 6 ☐ for a lifetime except for brief periods such as for military service or college
MR	S	2/3	23. My influence on most matters in this town is 0 ☐ non-existent; I have no influence 1 ☐ quite small 2 ☐ modest 3 ☐ moderate 4 ☐ large 5 ☐ among the most influential

FORM 4 - - General Questionnaire

Key	Mechanism	Cut Score	
DR	I	0/1	24. I 1 ☐ have visited public schools in other towns during the last two years 0 ☐ have not visited public schools in other towns during the last two years
DR	I	0/1	25. I 1 ☐ have visited a college or university in connection with my local public school business or interests during the last two years 0 ☐ have not visited a college or university in connection with my local public school business or interests during the last two years
DR	I	0/1	26. I 1 ☐ have traveled 50 miles or more from my home using personal funds and time to visit or attend a function of direct interest to my role in our local public schools 0 ☐ have not traveled 50 miles or more from my home using personal funds and time to visit or attend a function of direct interest to my role in our local public schools
			27. At present, my role in our local public schools is primarily as 8 ☐ school board member 7 ☐ educational administrator 6 ☐ member of the school's professional staff(not administrator, not department head, not teacher) 5 ☐ department head or lead teacher 4 ☐ teacher 3 ☐ parent-teachers association officer, etc. 2 ☐ parent 1 ☐ interested local citizen

FORM 5 - - Professional Staff Development Questionnaire



ARTHUR D. LITTLE, INC.

Cambridge, Massachusetts

STUDY OF INNOVATION IN EDUCATION

How this data will be used.

All information you give us which will permit identification of you or members of your household or family will be held in strict confidence. The information will be used only by persons engaged in this study and will not be disclosed or released to others for any purposes.

Name ______________________

City, State ______________________

Date ______________________

Professional Staff Development

Form 5 - - Professional Staff Development Questionnaire

SECTION ONE

COMMUNICATIONS I RECEIVE ABOUT EDUCATIONAL INNOVATION

FORM 5 - - Professional Staff Development Questionnaire

COMMUNICATIONS I RECEIVE

ABOUT EDUCATIONAL INNOVATION

INSTRUCTIONS

In the questions which follow, we ask you to consider who communicates to you about innovations in education. There are a variety of people from whom information about innovations in education may come. We have prepared a list of potential sources of information and will refer to these sources of information in questions which follow. Before asking the questions, however, we want to learn who you have in mind as you answer the questions. So we ask you to name these people.

Following is a list of roles, and beside each role is a place to write a person's name and address (city, state). Look over the entire list, then put a name beside each "role" when you know someone in that role. If you know several people in that role, name the person with whom you have talked--or whom you have heard talk--most frequently about PROFESSIONAL STAFF DEVELOPMENT. If you know no one, mark the box saying that. If you cannot remember a person's name, write in "I can't remember" to tell us that you know someone in that role but you cannot recall his name.

FORM 5 - - Professional Staff Development Questionnaire

Role 1. Nationally eminent scholar, writer, or researcher in education.

Name ____________________

City, State ____________________

☐ I know no one in this role.

Role 2. Superintendent of public schools in my town.

Name ____________________

Role 3. Principal of a public school in my town.

Name ____________________

Role 4. Member of local superintendent's or principal's professional staff.

Name ____________________

☐ I know no one in this role.

Role 5. Staff member of the State Department of Education.

Name ____________________

City, State ____________________

☐ I know no one in this role.

Role 6. Public school board member in my town.

Name ____________________

☐ I do not know a local school board member.

Role 7. Teacher in a public school in my town.

Name ____________________

☐ I do not know a local public school teacher.

FORM 5 - - Professional Staff Development Questionnaire

Role 8. Member of a citizen's group in my town.

Name ______________________________

Name of group ______________________

☐ I do not know a member of a citizen's group in my town.

Role 9. Public school administrator in a nearby town.

Name ______________________________

City, State ________________________

☐ I do not know a public school administrator in a nearby town.

Role 10. Public school teacher in a nearby town.

Name ______________________________

City, State ________________________

☐ I do not know a public school teacher in a nearby town.

Role 11. University professor.

Name ______________________________

City, State ________________________

☐ I do not know a university professor.

Role 12. Member of staff for an educational research organization.

Name ______________________________

Name of organization _______________

City, State ________________________

☐ I know no one in this role.

FORM 5 - - Professional Staff Development Questionnaire

Role 13. Elected public official.

Name ______________________________

Office ______________________________

City, State ______________________________

☐ I know no elected public official.

Role 14. Student.

Name ______________________________

Student in ☐ local public schools

☐ other schools

City, State ______________________________

☐ I know no student.

Role 15. Consultant to public schools in my town.

Name ______________________________

Consultant's employer ______________________________

City, State ______________________________

☐ I know no one in this role.

Role 16. County superintendent of schools in our county (not local superintendent).

Name ______________________________

City, State ______________________________

☐ I do not know our county superintendent of schools, or we have none.

Role 17. Member of county superintendent's professional staff (not local superintendent's staff).

Name ____________________

City, State ____________________

☐ I know no one in this role, or there are none.

Role 18. Public school student's parent.

Name ____________________

☐ I know no student's parent in my town.

As you answer the following questions, keep in mind the people you have named in the above roles.

FORM 5 -- Professional Staff Development Questionnaire

1. Many different persons have probably communicated to you in one way or another (i.e., conversations, speeches, lectures) about the topic of PROFESSIONAL STAFF DEVELOPMENT. Rank the following sources of information with respect to how frequently you have received information from them about PROFESSIONAL STAFF DEVELOPMENT.

Rank the source from which you have heard most frequently as 1, next most frequently as 2, and so on through 5.

Then rank the source from which you have heard least frequently as 18, next least frequently as 17, and so on through 14. Do not try to make the middle rankings (rank 6 through rank 13); they are even more difficult to make than the rankings of most and least.

☐ 1. Nationally eminent scholar, writer, or researcher in education.
☐ 2. Superintendent of public schools in my town.
☐ 3. Prinicpal of a public school in my town.
☐ 4. Member of local superintendent's or principal's professional staff.
☐ 5. Staff member of the State Department of Education.
☐ 6. Public school board member in my town.
☐ 7. Teacher in a public school in my town.
☐ 8. Member of a citizen's group in my town.
☐ 9. Public school administrator in a nearby town.
☐ 10. Public school teacher in a nearby town.
☐ 11. University professor.
☐ 12. Member of staff for an educational research organization.
☐ 13. Elected public official.
☐ 14. Student.
☐ 15. Consultant to public schools in my town.
☐ 16. County superintendent of schools in our county.
☐ 17. Member of county superintendent's professional staff (not local superintendent's staff).
☐ 18. Public school student's parent.

FORM 5 - - Professional Staff Development Questionnaire

2. Some people from whom you have heard regarding PROFESSIONAL STAFF DEVELOPMENT have a considerable amount of expertise or are generally regarded as highly reliable. Others may have been less credible as sources of useful information about PROFESSIONAL STAFF DEVELOPMENT. Rank the following sources of information with respect to their expertise, reliability, and credibility in matters about PROFESSIONAL STAFF DEVELOPMENT.

Rank the source which you regard as most expert-reliable-credible as 1, next most expert-reliable-credible as 2, and so on through 5.

Then rank the source which you regard as least expert-reliable-credible as 18, next least expert-reliable-credible as 17, and so on through 14. Do not try to make the middle rankings (rank 6 through rank 13).

☐ 1. Nationally eminent scholar, writer, or researcher in education.

☐ 2. Superintendent of public schools in my town.

☐ 3. Principal of a public school in my town.

☐ 4. Member of local superintendent's or principal's professional staff.

☐ 5. Staff member of the State Department of Education.

☐ 6. Public school board member in my town.

☐ 7. Teacher in a public school in my town.

☐ 8. Member of a citizen's group in my town.

☐ 9. Public school administrator in a nearby town.

☐ 10. Public school teacher in a nearby town.

☐ 11. University professor.

☐ 12. Member of staff for an educational research organization.

☐ 13. Elected public official.

☐ 14. Student.

☐ 15. Consultant to public schools in my town.

☐ 16. County superintendent of schools in our county.

☐ 17. Member of county superintendent's professional staff.

☐ 18. Public school student's parent.

FORM 5 - - Professional Staff Development Questionnaire

3. Thinking back on the various people who have communicated to you about PROFESSIONAL STAFF DEVELOPMENT, there are probably some whom you have liked more than others as a person or colleague. Rank the following sources of information with respect to their personal attractiveness as individuals.

Rank the source which is most personally likeable and attractive as 1, next most likeable as 2, and so on through 5.

☐ 1. Nationally eminent scholar, writer, or researcher in education.
☐ 2. Superintendent of public schools in my town.
☐ 3. Principal of a public school in my town.
☐ 4. Member of local superintendent's or principal's professional staff.
☐ 5. Staff member of the State Department of Education.
☐ 6. Public school board member in my town.
☐ 7. Teacher in a public school in my town.
☐ 8. Member of a citizen's group in my town.
☐ 9. Public school administrator in a nearby town.
☐ 10. Public school teacher in a nearby town.
☐ 11. University professor.
☐ 12. Member of staff for an educational research organization.
☐ 13. Elected public official.
☐ 14. Student.
☐ 15. Consultant to public schools in my town.
☐ 16. County superintendent of schools in our county.
☐ 17. Member of county superintendent's professional staff.
☐ 18. Public school student's parent.

FORM 5 - - Professional Staff Development Questionnaire

4. While some persons tend to present only one side of a case, others attempt to deal with both sides of an issue. Rank the following sources of information on the degree to which they present several sides of the arguments about PROFESSIONAL STAFF DEVELOPMENT.

Rank the source which is most likely to present the pros and cons of PROFESSIONAL STAFF DEVELOPMENT as 1, the source next most likely to present multi-sided arguments about PROFESSIONAL STAFF DEVELOPMENT as 2, and so on through 5.

Then rank the source which is least likely to present the pros and cons of PROFESSIONAL STAFF DEVELOPMENT as 18, the source next least likely to present multi-sided arguments about PROFESSIONAL STAFF DEVELOPMENT as 17, and so on through 14. Do not try to make the middle rankings (rank 6 through rank 13).

☐ 1. Nationally eminent scholar, writer, or researcher in education.

☐ 2. Superintendent of public schools in my town.

☐ 3. Principal of a public school in my town.

☐ 4. Member of local superintendent's or principal's professional staff.

☐ 5. Staff member of the State Department of Education.

☐ 6. Public school board member in my town.

☐ 7. Teacher in a public school in my town.

☐ 8. Member of a citizen's group in my town.

☐ 9. Public school administrator in a nearby town.

☐ 10. Public school teacher in a nearby town.

☐ 11. University professor.

☐ 12. Member of staff for an educational research organization.

☐ 13. Elected public official.

☐ 14. Student.

☐ 15. Consultant to public schools in my town.

☐ 16. County superintendent of schools in our county.

☐ 17. Member of county superintendent's professional staff.

☐ 18. Public school student's parent.

FORM 5 - - Professional Staff Development Questionnaire

5. Some arguments for or against PROFESSIONAL STAFF DEVELOPMENT are entirely rational in character, while other arguments rely to a greater extent upon emotional appeals. Rank the following sources of information on the degree to which they tended to use rational, as opposed to emotional, arguments in support of their position about PROFESSIONAL STAFF DEVELOPMENT.

Rank the source most likely to use rational arguments as 1, next most likely as 2, and so on through 5.

Then rank the source least likely to use rational arguments, or most likely to use emotional arguments, as 18, next least likely to use rational arguments as 17, and so on through 14. Do not try to make the middle rankings (rank 6 through rank 13).

☐ 1. Nationally eminent scholar, writer, or researcher in education.

☐ 2. Superintendent of public schools in my town.

☐ 3. Principal of a public school in my town.

☐ 4. Member of local superintendent's or principal's professional staff.

☐ 5. Staff member of the State Department of Education.

☐ 6. Public school board member in my town.

☐ 7. Teacher in a public school in my town.

☐ 8. Member of a citizen's group in my town.

☐ 9. Public school administrator in a nearby town.

☐ 10. Public school teacher in a nearby town.

☐ 11. University professor.

☐ 12. Member of staff for an educational research organization.

☐ 13. Elected public official.

☐ 14. Student.

☐ 15. Consultant to public schools in my town.

☐ 16. County superintendent of schools in our county.

☐ 17. Member of county superintendent's professional staff.

☐ 18. Public school student's parent.

FORM 5 -- Professional Staff Development Questionnaire

6. Some forms of argument put little pressure ("soft sell") on the individual, while others may be more coercive in nature ("hard sell"). Rank the following sources of information about PROFESSIONAL STAFF DEVELOPMENT with respect to their tendency to use "soft sell" arguments rather than "hard sell" arguments.

Rank the source most likely to use noncoercive ("soft sell") arguments as 1, next most "soft sell" as 2, and so on through 5.

Then rank the source least likely to use noncoercive arguments, or most likely to use coercive ("hard sell") arguments, as 18, next least likely to use "soft sell" arguments as 17, and so on through 14. Do not try to make the middle rankings (rank 6 through rank 13).

☐ 1. Nationally eminent scholar, writer, or researcher in education.

☐ 2. Superintendent of public schools in my town.

☐ 3. Principal of a public school in my town.

☐ 4. Member of local superintendent's or principal's professional staff.

☐ 5. Staff member of the State Department of Education.

☐ 6. Public school board member in my town.

☐ 7. Teacher in a public school in my town.

☐ 8. Member of citizen's group in my town.

☐ 9. Public school administrator in a nearby town.

☐ 10. Public school teacher in a nearby town.

☐ 11. University professor.

☐ 12. Member of staff for an educational research organization.

☐ 13. Elected public official.

☐ 14. Student.

☐ 15. Consultant to public schools in my town.

☐ 16. County superintendent of schools in our county.

☐ 17. Member of county superintendent's professional staff.

☐ 18. Public school student's parent.

FORM 5 - - Professional Staff Development Questionnaire

7. You have developed your own position with respect to PROFESSIONAL STAFF DEVELOPMENT. Thinking back on the various people who have communicated to you about PROFESSIONAL STAFF DEVELOPMENT, who has been most helpful in the formation and elaboration of your own position? Rank the following sources of information with respect to their help to you in the formation and elaboration of your own position with respect to PROFESSIONAL STAFF DEVELOPMENT.

Rank the source from which you received most help as 1, next most help as 2, and so on through 5.

Then rank the source from which you received least help as 18, next least help as 17, and so on through rank 14. Do not try to make the middle rankings (rank 6 through rank 13).

☐ 1. Nationally eminent scholar, writer, or researcher in education.

☐ 2. Superintendent of public schools in my town.

☐ 3. Principal of a public school in my town.

☐ 4. Member of local superintendent's or principal's professional staff.

☐ 5. Staff member of the State Department of Education.

☐ 6. Public school board member in my town.

☐ 7. Teacher in a public school in my town.

☐ 8. Member of a citizen's group in my town.

☐ 9. Public school administrator in a nearby town.

☐ 10. Public school teacher in a nearby town.

☐ 11. University professor.

☐ 12. Member of staff for an educational research organization.

☐ 13. Elected public official.

☐ 14. Student.

☐ 15. Consultant to public schools in my town.

☐ 16. County superintendent of schools in our county.

☐ 17. Member of county superintendent's professional staff.

☐ 18. Public school student's parent.

FORM 5 - - Professional Staff Development Questionnaire

8. You have developed your own position with respect to PROFESSIONAL STAFF DEVELOPMENT. Thinking back on the various people who have communicated to you about PROFESSIONAL STAFF DEVELOPMENT, who has caused you most to question and be doubtful about your own position? Rank the following sources of information with respect to their causing you to question or doubt your own position with respect to PROFESSIONAL STAFF DEVELOPMENT.

Rank the source causing you to raise the most questions as 1, next most influential in causing you to be doubtful about your position as 2, and so on through 5.

Then rank the source causing you least to be doubtful about your position as 18, the next least as 17, and so on through 14. Do not try to make the middle rankings (rank 6 through rank 13).

☐ 1. Nationally eminent scholar, writer, or researcher in education.
☐ 2. Superintendent of public schools in my town.
☐ 3. Principal of a public school in my town.
☐ 4. Member of local superintendent's or principal's professional staff.
☐ 5. Staff member of the State Department of Education.
☐ 6. Public school board member in my town.
☐ 7. Teacher in a public school in my town.
☐ 8. Member of citizen's group in my town.
☐ 9. Public school administrator in a nearby town.
☐ 10. Public school teacher in a nearby town.
☐ 11. University professor.
☐ 12. Member of staff for an educational research organization.
☐ 13. Elected public official.
☐ 14. Student.
☐ 15. Consultant to public schools in my town.
☐ 16. County superintendent of schools in our county.
☐ 17. Member of county superintendent's professional staff.
☐ 18. Public school student's parent.

Form 5 -- Professional Staff Development Questionnaire

SECTION TWO

MY POSITION WITH RESPECT TO PROFESSIONAL STAFF DEVELOPMENT

FORM 5 - - Professional Staff Development Questionnaire

MY POSITION WITH RESPECT TO
PROFESSIONAL STAFF DEVELOPMENT

INSTRUCTIONS

In the questions which follow, select the one answer which best describes your own position and role with respect to PROFESSIONAL STAFF DEVELOPMENT and mark your answer like this: ☒

Key Mechanism Cut Score

TR p 3/4

1. Adopting new PROFESSIONAL STAFF DEVELOPMENT programs in the public schools of my town will be (has been)

5 ☐ very easy to accomplish.

4 ☐ relatively easy to accomplish.

3 ☐ about as easy to accomplish as any change around here.

2 ☐ somewhat difficult to accomplish.

1 ☐ very difficult to accomplish.

UR p 4/5

2. Adopting new PROFESSIONAL STAFF DEVELOPMENT programs in the public schools in my town will be (has been)

5 ☐ a major aid to achieving the school's educational objectives.

4 ☐ a modest aid to achieving the school's educational objectives.

3 ☐ neither help nor hindrance in achieving the school's educational objectives.

2 ☐ a modest hindrance to achieving the school's educational objectives.

1 ☐ a major hindrance to achieving the school's educational objectives.

FORM 5 -- Professional Staff Development Questionnaire

Key Mechanism Cut Score

YR F 4/5

3. In the business of exploring whether to adopt new PROFESSIONAL STAFF DEVELOPMENT programs in our public schools, I will be (have been)

5 ☐ very active.
4 ☐ moderately active.
3 ☐ about as active as anyone else around here.
2 ☐ moderately inactive.
1 ☐ essentially uninvolved.

YR F 4/5

4. My position on the adoption of PROFESSIONAL STAFF DEVELOPMENT in the public schools in my town has been stated by me

5 ☐ in public speeches.
4 ☐ in conversations or meetings with several people present.
3 ☐ in a number of private conversations.
2 ☐ in a very select number of conversations.
1 ☐ only to my closest confidantes, or to no one at all.

YR F 4/5

5. My activities to generate support for my position with respect to PROFESSIONAL STAFF DEVELOPMENT have been

5 ☐ greater than on any previous educational matter.
4 ☐ equaled only by my best previous efforts on other educational matters.
3 ☐ active, but not equal to some of my prior efforts on other educational matters.
2 ☐ quite modest when compared to my prior efforts on other educational matters.
1 ☐ essentially zero.

FORM 5 - - Professional Staff Development Questionnaire

Key	Mechanism	Cut Score	
YR	F	3/4	6. With respect to PROFESSIONAL STAFF DEVELOPMENT, I feel 5 ☐ more completely informed than anyone else around our town. 4 ☐ very well informed, and equalled by only a few others in our town. 3 ☐ better informed than many people in our town. 2 ☐ about as well informed as most people in our town. 1 ☐ not as well informed as most people in our town.
TR	p	3/4	7. The adoption of new PROFESSIONAL STAFF DEVELOPMENT programs in our town will be (has been) 4 ☐ only one of many changes of importance that our public schools have made in the last five years. 3 ☐ one of several changes of importance that our public schools have made in the last five years. 2 ☐ one of two or three other changes of importance that our public schools have made in the last five years. 1 ☐ about the only change of importance that our public schools have made in the last five years.
VR	p	3/4	8. With respect to PROFESSIONAL STAFF DEVELOPMENT, our town's public schools are adopting (have adopted) 5 ☐ essentially all the features of importance in PROFESSIONAL STAFF DEVELOPMENT. 4 ☐ most of the features of importance in PROFESSIONAL STAFF DEVELOPMENT. 3 ☐ some, but not enough, of the features of importance in PROFESSIONAL STAFF DEVELOPMENT. 2 ☐ few of the features of importance in PROFESSIONAL STAFF DEVELOPMENT. 1 ☐ essentially none of the important features of PROFESSIONAL STAFF DEVELOPMENT.

SECTION THREE

RATINGS OF

SOURCES OF INFLUENCE ON ME ABOUT

PROFESSIONAL STAFF DEVELOPMENT

FORM 5 - - Professional Staff Development Questionnaire

RATINGS OF
SOURCES OF INFLUENCE ON ME ABOUT
PROFESSIONAL STAFF DEVELOPMENT

INSTRUCTIONS

For each of the activities, information sources, and people which follow, rate the importance of its influence on the formation and development of your own position with respect to PROFESSIONAL STAFF DEVELOPMENT. Record your rating with one mark beside each item, like this: ☒

Has had a very large and important influence, one way or the other, on my position → 5

Has had an important influence, one way or the other, on my position → 4

Has had a moderate influence, one way or the other, on my position → 3

Has had a little influence, one way or the other, on my position → 2

Has had no influence, one way or the other, on my position → 1

Key	Mechanism	Cut Score			1	2	3	4	5
AR	I	3/4	1.	Professional journals about education	☐	☐	☐	☐	☐
QR	F	3/4	2.	Student response to its trial in our school	☐	☐	☐	☐	☐
			3.	Television broadcasts on the topic	☐	☐	☐	☐	☐
BR	I	2/3	4.	Meetings of a professional society to which I belong	☐	☐	☐	☐	☐
CR	I	3/4	5.	My discussions with others during a workshop	☐	☐	☐	☐	☐
					1	2	3	4	5
CR	I	1/2	6.	My full-time study during a sabbatical leave	☐	☐	☐	☐	☐
CR	I	3/4	7.	My summer (or evening) course at a university	☐	☐	☐	☐	☐
JR	S	2/3	8.	A period of trial in our school made possible by federal and state funds	☐	☐	☐	☐	☐
AR	I	2/3	9.	Articles in the public press	☐	☐	☐	☐	☐
KR	S	4/5	10.	Discussions with our local school administrators	☐	☐	☐	☐	☐

FORM 5 - - Professional Staff Development Questionnaire

Has had a very large and important influence, one way or the other, on my position → 5

Has had an important influence, one way or the other, on my position → 4

Has had a moderate influence, one way or the other, on my position → 3

Has had a little influence, one way or the other, on my position → 2

Has had no influence, one way or the other, on my position → 1

Key	Mechanism	Cut Score			1	2	3	4	5
DR	I	3/4	11.	My visits to a school not too far from our school(s)	☐	☐	☐	☐	☐
ER	I	2/3	12.	Visits by people from other places to our school	☐	☐	☐	☐	☐
AR	I	3/4	13.	Books about education	☐	☐	☐	☐	☐
ER	I	1/2	14.	Visits by a publisher or other supplier of school materials	☐	☐	☐	☐	☐
ER	I	2/3	15.	Lecture(s) by a visitor to our town (school)	☐	☐	☐	☐	☐
			16.	A special assignment I assumed by reducing other responsibilities I had for matters of education	☐	☐	☐	☐	☐
					1	2	3	4	5
AR	I	2/3	17.	Research reports by an educational research organization	☐	☐	☐	☐	☐
LR	S	1/2	18.	Businessmen in my town	☐	☐	☐	☐	☐
ER	I	1/2	19.	Visits by professional staff from the State Department of Education	☐	☐	☐	☐	☐
AR	I	2/3	20.	My reading in a nearby university library	☐	☐	☐	☐	☐
DR	I	1/2	21.	My visits to an educational research organization	☐	☐	☐	☐	☐
LR	S	1/2	22.	Activities or programs of a citizen's organization, such as the League of Women Voters	☐	☐	☐	☐	☐

FORM 7 - - Interviewer Description of Interview and Innovation

INTERVIEWER DESCRIPTION OF INTERVIEW AND INNOVATION

Name of Interviewee ________________________________

Position (or role) of Interviewee ________________________

Date of Interview ________________________________

Date of completing this form __________________________

Name of Interviewer ________________________________

MARK ONE ANSWER FOR EACH QUESTION

1. The interviewee's position in the school system job hierarchy is
   - ☐ 9 school board member
   - ☐ 8 superintendent
   - ☐ 7 district central office (superintendent's) staff
   - ☐ 6 principal
   - ☐ 5 principal's staff
   - ☐ 4 department head; team leader; supervising teacher
   - ☐ 3 teacher
   - ☐ 2 teacher aide
   - ☐ 1 other, not in school system

2. Interview concerned innovations in
   - ☐ 1 team teaching
   - ☐ 0 professional staff development (inservice training)

3. The major (most significant) innovation discussed was first tried
   - ☐ 3 within the last 12 months
   - ☐ 2 12 to 24 months ago
   - ☐ 1 25 to 36 months ago
   - ☐ 0 37 or more months ago

Key Mechanism Cut Score

FORM 7 - - Interviewer Description of Interview and Innovation

TV p 3/4 8. The rate at which the major innovation discussed has spread (been implemented) throughout the system is

- ☐ 5 rapid rate
- ☐ 4 moderate rate
- ☐ 3 slow rate
- ☐ 2 very slow rate
- ☐ 1 zero (or has been discontinued)

9. The adopted major innovation requires

- ☐ 4 significantly increased contact (face-to-face interaction) of educators across schools
- ☐ 3 slightly more contact across schools
- ☐ 2 no increase in the amount of contact across schools
- ☐ 1 decreased contact across schools

10. The adopted major innovation requires

- ☐ 4 significantly increased contact (face-to-face interaction) among educators within schools
- ☐ 3 slightly increased contact within schools
- ☐ 2 no increase in the amount of contact within schools
- ☐ 1 decreased contact within schools

DV I 1/2 11. The number of visits by district educators to locations outside the district to discuss or explore the major innovation was

- ☐ 5 very large (more than 50)
- ☐ 4 large (25 to 50)
- ☐ 3 moderate (15 to 24)
- ☐ 2 small (5 to 14)
- ☐ 1 very small (1 to 4)
- ☐ 0 zero

Key Mechanism Cut Score

FORM 7 - - Interviewer Description of Interview and Innovation

VV p 2/3

4. The major innovation discussed now shows
   - ☐ 5 essentially all the features of "best educational practice"
   - ☐ 4 many features
   - ☐ 3 some features
   - ☐ 2 few features
   - ☐ 1 essentially none of the features of "best educational practice"

5. The major innovation discussed is now adopted and in effect
   - ☐ 6 in each 12 grade levels of the system
   - ☐ 5 in each high school grade
   - ☐ 4 in each junior high school grade
   - ☐ 3 in each elementary grade
   - ☐ 2 in 3 to 6 elementary grades
   - ☐ 1 in 1 or 2 elementary grades

6. The major innovation discussed is now in effect in
   - ☐ 5 all schools of the system
   - ☐ 4 all secondary (including "middle") schools
   - ☐ 3 all elementary schools
   - ☐ 2 more than one school
   - ☐ 1 a single school

WV p 1/2

7. The estimated percentage of district's professional staff involved in the adoption of the major innovation
   - ☐ 5 80% or more
   - ☐ 4 50% to 79%
   - ☐ 3 30% to 49%
   - ☐ 2 10% to 29%
   - ☐ 1 less than 10%

FORM 7 - - Interviewer Description of Interview and Innovation

Key	Mechanism	Cut Score	
EV	I	1/2	12. The number of "outside" consultants (resource persons) from any source who were involved before and during the adoption of the major innovation were ☐ 5 more than 5 ☐ 4 4 or 5 ☐ 3 3 ☐ 2 2 ☐ 1 1 ☐ 0 none
			13. In the implementation of this innovation Federal funds were ☐ 4 absolutely essential ☐ 3 important, but not essential ☐ 2 helpful to a degree ☐ 1 unimportant or not used
EV	I	0/1	14. In conceiving and implementing this major innovation, representatives from the state department of education and/or from an intermediate or regional educational unit (not university) were ☐ 2 actively involved ☐ 1 in contact, but not actively involved ☐ 0 not involved
EV	I	0/1	15. In conceiving and implementing this major innovation, representatives from the state department of education and/or from an intermediate or regional educational unit (not university) were ☐ 3 very helpful ☐ 2 helpful, but limited in availability ☐ 1 not particularly helpful in their contacts ☐ 0 not involved

FORM 7 - - Interviewer Description of Interview and Innovation

Key	Mechanism	Cut Score	
RV	F	0/1	16. The major innovation ☐ 3 is being evaluated repeatedly ☐ 2 is being, or was, evaluated in a "one-time" systematic manner ☐ 1 is "being evaluated" by informal methods ☐ 0 is not being evaluated
RV	F	1/2	17. The evaluation results (see #16) are (were) ☐ 3 utilized broadly and effectively in determining whether or not to extend the application of the innovation ☐ 2 utilized in a somewhat limited fashion ☐ 1 utilized in a very limited or casual manner ☐ 0 not being used (or weren't developed)
SV	F	1/2	18. Parents of students affected by the innovation in the local system ☐ 2 are generally aware of the innovation and approve it ☐ 1 are generally aware of the innovation and are indifferent or disapproving about it ☐ 0 are not aware of the innovation
QV	F	1/2	19. Students affected by the innovation ☐ 2 are generally aware of the innovation and approve it ☐ 1 are generally aware of the innovation and are indifferent or disapproving about it ☐ 0 are not aware of the innovation
ZV	O	2/3	20. The innovation was ☐ 4 thoroughly investigated by several local people before local implementation ☐ 3 thoroughly investigated by one local person before local implementation ☐ 2 investigated to some extent by one or a few local people before local implementation ☐ 1 adopted with little or no investigation by local people

FORM 7 - - Interviewer Description of Interview and Innovation

Key	Mechanism	Cut Score	
ZV	0	2/3	21. The implementation of the innovation was ☐ 4 thoroughly planned by several local people for local implementation ☐ 3 thoroughly planned by one local person for local implementation ☐ 2 planned to some extent by one or a few local people for local implementation ☐ 1 adopted with little or no planning for implementation by local people
ZV	0	1/2	22. The implementation of the innovation was accompanied by ☐ 3 thorough orientation for affected local school personnel ☐ 2 some orientation for affected local school personnel ☐ 1 little orientation for affected local school personnel ☐ 0 no orientation for affected local school personnel
KV	S	3/4	23. The innovation adoption was accompanied by ☐ 4 Superintendent's positive leadership and active participation ☐ 3 Superintendent's general support but little direct influence or participation ☐ 2 Superintendent's knowledge and qualified support ☐ 1 no evidence of Superintendent's knowledge or support ☐ 0 resistance on the part of the Superintendent
KV	S	2/3	24. The School Board's influence in the adoption of the innovation was ☐ 3 knowledgeable and definitely supportive ☐ 2 generally supportive and aware of the innovation ☐ 1 generally unaware of such innovations
MV	S	4/5	25. How do you characterize the interviewee? ☐ 7 Exceedingly well informed about school system (district) practices and the opinions of teachers and administrators ☐ 6 ☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 Knows practically nothing about district practices and opinions of teachers and administrators

FORM 8 - - Interviewer Description of Community and School System

INTERVIEWER DESCRIPTION OF COMMUNITY AND SCHOOL SYSTEM

School district ________________________________

City, State ________________________________

Dates for interviews ________________________________

Date of completing this form ________________________________

Interviewer ________________________________

MARK ONE ANSWER FOR EACH QUESTION

1. During the last five years the proportion of well-educated parents in the school district has been
   - ☐ 5 rising rapidly
   - ☐ 4 rising, but not rapidly
   - ☐ 3 remaining about the same
   - ☐ 2 falling, but not rapidly
   - ☐ 1 falling rapidly

2. During the last five years the enrollment in the school district
   - ☐ 5 has doubled or more
   - ☐ 4 has increased by 1 1/2 times, but has not doubled
   - ☐ 3 has increased, but has not increased by 1 1/2 times
   - ☐ 2 has remained the same
   - ☐ 1 has declined

Key	Mechanism	Cut Score
FV	I	0/1

3. There is
   - ☐ 1 one or more colleges or universities preparing teachers within 30 miles or less of the school district
   - ☐ 0 no college or university preparing teachers within 30 miles or less of the school district

FORM 8 - - Interviewer Description of Community and School System

Key	Mechanism	Cut Score	
JV	S	3/4	4. During the last five years the local tax rate for the school system has ☐ 5 doubled or more ☐ 4 increased 1 1/2 times, but not doubled ☐ 3 increased, but not by 1 1/2 times ☐ 2 remained about the same, or increased very slightly ☐ 1 decreased
JV	S	3/4	5. The district ☐ 4 thoroughly exploits available Federal educational programs and funds ☐ 3 makes good, but not exceptional, use of Federal funds ☐ 2 makes selective, but somewhat limited, use of Federal funds ☐ 1 makes little attempt to use Federal funds
			6. The professional personnel in the local school system includes ☐ 3 10% or more at the doctoral level ☐ 2 5% to 9% at the doctoral level ☐ 1 some at the doctoral level, but fewer than 4% ☐ 0 no one at the doctoral level
FV	I	2/3	7. The proportion of professional personnel newly hired in the last five years is ☐ 4 50% or more ☐ 3 30% to 49% ☐ 2 10% to 29% ☐ 1 9% or less
KW	S	2/3	8. The school board spends ☐ 4 over 50% of its time reviewing matters of curriculum and program ☐ 3 less than 50%, but more than 33%, of its time on matters of curriculum and program ☐ 2 less than 33%, but more than 10%, of its time on matters of curriculum and program ☐ 1 less than 10% of its time on matters of curriculum and program

Key Mechanism Cut Score

FORM 8 - - Interviewer Description of Community and Schooly System

9. The school board spends
   - ☐ 4 over 50% of its time reviewing matters of school construction and site selection
   - ☐ 3 less than 50%, but more than 33%, of its time reviewing matters of school construction and site selection
   - ☐ 2 less than 33%, but more than 10%, of its time on matters of school construction and site selection
   - ☐ 1 less than 10% of its time on matters of school construction and site selection

KW S 3/2

10. The school board spends
    - ☐ 4 over 50% of its time reviewing matters of school operating budget
    - ☐ 3 less than 50%, but more than 33%, of its time on matters of school operating budget
    - ☐ 2 less than 33%, but more than 10%, of its time on matters of school operating budget
    - ☐ 1 less than 10% of its time on matters of school operating budget

LV S 3/4

11. Parent interest and participation in school affairs in this school system is
    - ☐ 4 very high
    - ☐ 3 moderately high
    - ☐ 2 moderately low
    - ☐ 1 quite low

LV S 4/5

12. District elections on school matters in the last five years indicate
    - ☐ 5 consistent and very strong support for education
    - ☐ 4 generally consistent majority support
    - ☐ 3 occasional majority support
    - ☐ 2 very little support
    - ☐ 1 no indication of support via elections

FORM 8 - - Interviewer Description of Community and School System

Key	Mechanism	Cut Score
LV	S	2/3

13. Professional personnel interviewed report and can name

☐ 3 several parents and citizens who actively stimulate and support educational development

☐ 2 a few parents and citizens who actively stimulate and support educational development

☐ 1 only one or two parents and citizens who actively stimulate and support educational development

☐ 0 no parents and citizens who actively stimulate and support educational development

FORM 9 - - Summary Ratings of Each School District by Each Interviewer

SUMMARY RATINGS OF EACH SCHOOL DISTRICT

BY EACH INTERVIEWER

General Instructions

At the conclusion of each three-day visit to a school district and after all other interviewer questionnaires are completed, each interviewer independently fills out the following questionnaire integrating and summarizing information and insights developed in that district.

Key Mechanism Cut Score

A. EDUCATIONAL DEVELOPMENTS IN GENERAL

1. The process of detecting needs for educational developments and improvements (including but not limited to the specific innovations we studied) is characterized by the use of (indicate extent of use):

RW F 2/3 a. Comprehensive system-wide (grades 1-12) assessments/evaluations

____	____	____	____	____	____	____
1	2	3	4	5	6	7
None						Frequent, or thoroughgoing use

RW F 3/4 b. Assessments/evaluations throughout single schools

____	____	____	____	____	____	____
1	2	3	4	5	6	7
None						Frequent, or thoroughgoing use

RW F 3/4 c. Assessments/evaluations of specific curriculum areas and across several grade levels

____	____	____	____	____	____	____
1	2	3	4	5	6	7
None						Frequent, or thoroughgoing use

FORM 9 - - Summary Ratings of Each School District by Each Interviewer

Key	Mechanism	Cut Score	
RW	F	3/4	d. Assessments/evaluations in limited areas; e.g., math achievement in all third grade classes in a single elementary school; need for remedial reading in the eighth grade; etc.

____	____	____	____	____	____	____
1	2	3	4	5	6	7
None						Frequent, or thoroughgoing use

Key	Mechanism	Cut Score	
RW	F	3/4	2. In general, the assessments/evaluations used within the district to detect needs or opportunities for educational improvements and innovations are

informal and casual versus well-planned and organized

____	____	____	____	____	____	____
1	2	3	4	5	6	7
Very informal						Very well organized

3. Extent to which information on needs/opportunities for educational developments and improvements is shared:

Key	Mechanism	Cut Score	
NV	0	4/5	a. Among all appropriate district professional personnel

____	____	____	____	____	____	____
1	2	3	4	5	6	7
Virtually zero communication						Excellent communication

Key	Mechanism	Cut Score	
OV	0	3/4	b. With the local school board

____	____	____	____	____	____	____
1	2	3	4	5	6	7
Virtually zero sharing						Very great sharing

Key	Mechanism	Cut Score	
OV	0	3/4	c. With the local community (including parents)

____	____	____	____	____	____	____
1	2	3	4	5	6	7
Virtually zero sharing						Very great sharing

Key Mechanism Cut Score

FORM 9 - - Summary Ratings of Each School District by Each Interviewer

FV I 3/4

4. Indicate extent to which district personnel use "outside" professional resource persons in exploring or planning for new educational developments (innovations)

____	____	____	____	____	____	____
1	2	3	4	5	6	7
Use none						Use a great deal

5. Potential educational innovations are considered for adoption in this district because they represent

____	____	____	____	____	____	____
1	2	3	4	5	6	7
part of a continuing, pervasive commitment to quality education						at least partial solutions to specific, pressing problems

6. Degree to which district administration works at getting increased local financial support for educational development and improvement

____	____	____	____	____	____	____
1	2	3	4	5	6	7
Very little directed effort						Very great directed effort

B. TEAM TEACHING INNOVATIONS

WW P 3/4

1. Extent to which Team Teaching (in various forms or applications) is found throughout the school system (schools and grade levels)

____	____	____	____	____	____	____
1	2	3	4	5	6	7
To a very limited extent						To a very great extent

FORM 9 -- Summary Ratings of Each School District by Each Interviewer

Key	Mechanism	Cut Score	
VW	p	3/4	2. Degree to which the several attributes of Team Teaching are incorporated in the school system's application(s) of the concept ___ ___ ___ ___ ___ ___ ___ 1 2 3 4 5 6 7 Very few attributes ... Very many attributes
TW	P	3/4	3. Rate (extent/time) at which Team Teaching has spread through the school system ___ ___ ___ ___ ___ ___ ___ 1 2 3 4 5 6 7 Very slow rate ... Very rapid rate
			4. Team Teaching "movers" (proponents and initiators) seemed knowledgeable about the subject (including needs for it and approaches to it) to the following degree ___ ___ ___ ___ ___ ___ ___ 1 2 3 4 5 6 7 Very little knowledge ... Extremely knowledgeable
PV	F	4/5	5. Degree of commitment manifested by Team Teaching "movers" ___ ___ ___ ___ ___ ___ ___ 1 2 3 4 5 6 7 Very little commitment ... Extremely high commitment
			6. Those reluctant to adopt Team Teaching seemed knowledgeable about the subject (including needs for it and approaches to it) to the following degree ___ ___ ___ ___ ___ ___ ___ 1 2 3 4 5 6 7 Very little knowledge ... Extremely knowledgeable

Key | Mechanism | Cut Score

FORM 9 - - Summary Ratings of Each School District by Each Interviewer

PV F 4/3

7. Intensity of resistance manifested by those reluctant to adopt Team Teaching

_____	_____	_____	_____	_____	_____	_____
1	2	3	4	5	6	7
Very mild resistance						Very intense resistance

NV O 3/4

8. Amount of purposeful effort expended in the district to familiarize the professional staff with Team Teaching

_____	_____	_____	_____	_____	_____	_____
1	2	3	4	5	6	7
Very little effort						A great deal of effort

PV F 4/5

9. Degree of enthusiasm for Team Teaching manifested by actual participants

_____	_____	_____	_____	_____	_____	_____
1	2	3	4	5	6	7

C. ROLES AFFECTING TEAM TEACHING INNOVATIONS

1. The essential impetus (initiating effort) toward Team Teaching (where it's now found or being considered) came from each of these various levels in the following degree

GV O 3/4

a. Classroom teachers

_____	_____	_____	_____	_____	_____	_____
1	2	3	4	5	6	7
Very little impetus						Very high impetus

GV I 1/2

b. Supervisory teachers (department heads, head teacher, etc.)

_____	_____	_____	_____	_____	_____	_____
1	2	3	4	5	6	7
Very little impetus						Very high impetus

FORM 9 - - Summary Ratings of Each School District by Each Interviewer

Key	Mechanism	Cut Score	
HV	I	4/5	c. Principals ___ ___ ___ ___ ___ ___ ___ 1 2 3 4 5 6 7 Very little impetus — Very high impetus
HV	I	4/5	d. Superintendent's central staff supervisors and specialists ___ ___ ___ ___ ___ ___ ___ 1 2 3 4 5 6 7 Very little impetus — Very high impetus
HV	I	4/5	e. Superintendent ___ ___ ___ ___ ___ ___ ___ 1 2 3 4 5 6 7 Very little impetus — Very high impetus
IV	I	3/4	f. School Board ___ ___ ___ ___ ___ ___ ___ 1 2 3 4 5 6 7 Very little impetus — Very high impetus
IV	I	3/4	g. Influences "outside" the school system (citizen's groups, outside consultants, parents, accreditation agencies, etc.) ___ ___ ___ ___ ___ ___ ___ 1 2 3 4 5 6 7 Very little impetus — Very high impetus
			2. Where Team Teaching is now found or is being seriously considered, each of these levels afforded what degree of active participation in determining the feasibility of Team Teaching
NV	O	4/5	a. Classroom teachers ___ ___ ___ ___ ___ ___ ___ 1 2 3 4 5 6 7 Virtually inactive — Extremely active

FORM 9 - - Summary Ratings of Each School District by Each Interviewer

Key	Mechanism	Cut Score	
NV	0	3/4	b. Supervisory teachers (department heads, head teacher, etc.) _____ _____ _____ _____ _____ _____ _____ 1 2 3 4 5 6 7 Virtually inactive … Extremely active
NV	0	4/5	c. Principals _____ _____ _____ _____ _____ _____ _____ 1 2 3 4 5 6 7
NV	0	4/5	d. Superintendent's central staff supervisors and specialists _____ _____ _____ _____ _____ _____ _____ 1 2 3 4 5 6 7 Virtually inactive … Extremely active
NV	0	4/5	e. Superintendent _____ _____ _____ _____ _____ _____ _____ 1 2 3 4 5 6 7 Virtually inactive … Extremely active
OV	0	2/3	f. School Board _____ _____ _____ _____ _____ _____ _____ 1 2 3 4 5 6 7 Virtually inactive … Extremely active
OV	0	3/4	g. Influences "outside" the school system (citizen's groups, outside consultants, parents, accreditation agencies, etc.) _____ _____ _____ _____ _____ _____ _____ 1 2 3 4 5 6 7 Virtually inactive … Extremely active

FORM 9 - - Summary Ratings of Each School District by Each Interviewer

Key	Mechanism	Cut Score

D. PROFESSIONAL STAFF DEVELOPMENT INNOVATIONS

(NOTE: The term Professional Staff Development includes various types of inservice training.)

WW p 3/4

1. Extent to which Professional Staff Development activities (in various forms or applications) are found throughout the school system (schools and grade levels)

_____	_____	_____	_____	_____	_____	_____
1	2	3	4	5	6	7
To a very limited extent						To a very great extent

VW p 3/4

2. Degree to which the several forms and approaches to Professional Staff Development are incorporated in the school system's application(s) of the concept

_____	_____	_____	_____	_____	_____	_____
1	2	3	4	5	6	7
Very few attributes						Very many attributes

TW p 3/4

3. Rate (extent/time) at which Professional Staff Development has spread through the school system

_____	_____	_____	_____	_____	_____	_____
1	2	3	4	5	6	7
Very slow rate						Very rapid rate

4. Professional Staff Development "movers" (proponents and initiators) seemed knowledgeable about the subject (including needs for it and approaches to it) to the following degree

_____	_____	_____	_____	_____	_____	_____
1	2	3	4	5	6	7
Very little knowledge						Extremely knowledgeable

PV O 4/5

5. Degree of commitment manifested by Professional Staff Development "movers"

_____	_____	_____	_____	_____	_____	_____
1	2	3	4	5	6	7
Very little commitment						Extremely high commitment

Key Mechanism Cut Score

FORM 9 -- Summary Ratings of Each Scool District
by Each Interviewer

6. Those reluctant to adopt systematic Professional Staff Development activities seemed knowledgeable about the subject (including needs for it and approaches to it) to the following degree

1	2	3	4	5	6	7
Very little knowledge						Extremely knowledgeable

PV 0 4/3 7. Intensity of resistance manifested by those reluctant to adopt Professional Staff Development activites

1	2	3	4	5	6	7
Very mild resistance						Very intense resistance

NV 0 3/4 8. Amount of purposeful effort expended in the district to familiarize the professional staff with needs for and approaches to Professional Staff Development

1	2	3	4	5	6	7
Very little effort						A great deal of effort

PV 0 4/5 9. Degree of enthusiasm for Professional Staff Development activities manifested by actual participants (team members)

1	2	3	4	5	6	7
Very little enthusiasm						A great deal of enthusiasm

E. ROLES AFFECTING PROFESSIONAL STAFF DEVELOPMENT INNOVATIONS

1. The essential impetus (initiating effort) toward Professional Staff Development activities (where it's now found or being considered) came from each of these various levels in the following degree

GV I 3/4 a. Classroom teachers

1	2	3	4	5	6	7
Very little impetus						Very high impetus

FORM 9 - - Summary Ratings of Each Scool District by Each Interviewer

Key	Mechanism	Cut Score	Item
GV	I	1/2	b. Supervisory teachers (department heads, head teachers, etc.)
HV	I	4/5	c. Principals
HV	I	4/5	d. Superintendent's central staff supervisors and specialists
HV	I	5/6	e. Superintendent
IV	I	3/4	f. School Board
IV	I	3/4	g. Influences "outside" the school system (citizen's groups, outside consultants, parents, accreditation agencies, etc.)

b. Supervisory teachers (department heads, head teachers, etc.)

____ ____ ____ ____ ____ ____ ____
1 2 3 4 5 6 7
Very little impetus ... Very high impetus

c. Principals

____ ____ ____ ____ ____ ____ ____
1 2 3 4 5 6 7
Very little impetus ... Very high impetus

d. Superintendent's central staff supervisors and specialists

____ ____ ____ ____ ____ ____ ____
1 2 3 4 5 6 7
Very little impetus ... Very high impetus

e. Superintendent

____ ____ ____ ____ ____ ____ ____
1 2 3 4 5 6 7
Very little impetus ... Very high impetus

f. School Board

____ ____ ____ ____ ____ ____ ____
1 2 3 4 5 6 7
Very little impetus ... Very high impetus

g. Influences "outside" the school system (citizen's groups, outside consultants, parents, accreditation agencies, etc.)

____ ____ ____ ____ ____ ____ ____
1 2 3 4 5 6 7
Very little impetus ... Very high impetus

FORM 9 -- Summary Ratings of Each School District
by Each Interviewer

Key	Mechanism	Cut Score	
			2. Where Professional Staff Development activities are now found or are being seriously considered, each of these levels afforded what degree of active participation in determining the feasibility of Professional Staff Development
NV	0	4/5	a. Classroom teachers ____ ____ ____ ____ ____ ____ ____ 1 2 3 4 5 6 7 Virtually inactive ... Extremely active
NV	0	3/4	b. Supervisory teachers (department heads, head teachers, etc.) ____ ____ ____ ____ ____ ____ ____ 1 2 3 4 5 6 7 Virtually inactive ... Extremely active
NV	0	4/5	c. Principals ____ ____ ____ ____ ____ ____ ____ 1 2 3 4 5 6 7 Virtually inactive ... Extremely active
NV	0	4/5	d. Superintendent's central staff supervisors and specialists ____ ____ ____ ____ ____ ____ ____ 1 2 3 4 5 6 7 Virtually inactive ... Extremely active
NV	0	4/5	e. Superintendent ____ ____ ____ ____ ____ ____ ____ 1 2 3 4 5 6 7 Virtually inactive ... Extremely active

FORM 9 - - Summary Ratings of Each School District
by Each Interviewer

Key	Mechanism	Cut Score	
OV	0	2/3	f. School Board
OV	0	3/4	g. Influences "outside" the school system (citizen's groups, outside consultants, parents, accreditation agencies, etc.)

f. School Board

____	____	____	____	____	____	____
1	2	3	4	5	6	7
Virtually inactive						Extremely active

g. Influences "outside" the school system (citizen's groups, outside consultants, parents, accreditation agencies, etc.)

____	____	____	____	____	____	____
1	2	3	4	5	6	7
Virtually inactive						Extremely active